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ABSTRACT

The papers in this collection focus on the integration of child language development research into curriculum and instruction, which was the general topic of four conferences held in conjunction with the 1979 and 1980 annual conventions of the International Reading Association and the National Council of Teachers of English. Section one, on child language research, contains five papers that provide up-to-date insights into learning oral as well as written language. Section two, concerning child language in schools, examines language and thinking-focused curriculum development, the interrelationships of oral and written language in the classroom, responses to literature in a school environment, and peer dialogues across the curriculum. Section three, on child language research and teachers, contains a description of an investigation of an inservice program for teachers and a discussion of nine principles of teaching applied within the context of two experimental teacher education programs. Section four offers comments about the four conferences from two people who attended all of them, and section five provides a list of readings for teachers and a bibliography of recent works cited by the contributors to this collection. (RL)

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ORAL AND WRITTEN LANGUAGE DEVELOPMENT RESEARCH:
IMPACT ON THE SCHOOLS

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Introduction

When UNESCO declared 1979 as the International Year of the Child, we believed that the two major professional teachers' organizations of which we would become presidents should find a way to highlight children's rights. In the past twenty years, much had been happening in research in child language development. We believed that the more teachers knew about child language research and the translation of this knowledge into classroom experience, the more children's rights in relation to their language and language learning would be understood and respected. We also believed that researchers in child language development might benefit from hearing the questions teachers were asking about child language. Finally, we believed that as teachers, teacher educators, and researchers communicated, there would be direct impact on the lives of children and their language learning opportunities and experiences.

We elaborated on an idea that was proposed by Charlotte Huck, in 1977 then president of NCTE, and the "IMPACT Conferences" were born.

In keeping with the UNESCO declaration, the conferences focused on the child in language learning. As two major professional organizations dedicated to the teaching and learning of reading, writing, speaking, and listening, it seemed fitting that the International Reading Association and the National Council of Teachers of English would support such an effort.

Four conferences were held in 1979 and 1980 during the annual conventions of the two organizations. Conference One was held in Atlanta in May at the 1979 IRA Annual Convention; Conference Two was held in San Francisco in November, 1979 as part of the NCTE annual convention. The third and fourth conferences were held respectively in St. Louis in May and in Cincinnati in November of 1980.

The speakers at the conferences included researchers studying how children learn to speak, listen, read, and write, and what intuitive knowledge children have about language prior to formal schooling. Educators of teachers talked about how in-service programs could help instructors apply this knowledge to the classroom. Teachers provided and demonstrated evidence of classroom experiences which made use of these ideas. We all had opportunity to talk together and to learn together.

There were psychologists, linguists, psycholinguists, educationists, and teachers. Piagetians, Vygotskyans, Nativists, and Cognitivists came together for discussion and dialogue, argumentation and resolution, thinking and learning.

The conference had impact on the 800 people who attended. A newsletter was started by one teacher. Local conferences were developed by teacher educators. Children made buttons saying HARA FR KiD PWR (hurrah for kid power). Teachers and researchers joined efforts for continued research and communication. Both IRA and NCTE still have committees to carry this impact forward, and further work has been planned—a good deal of it under way.

Also, this volume of papers is one more feature of the impact. It was made possible particularly through support from the National Institute of Education and the work of Joseph Dominic. Myna Haussler has been instrumental in editing this volume with us and in the coordination of the four conferences.

We hope this volume will have its own impact. Although a written document cannot capture the dynamic interactions which follow the oral presentations, our hope is that it will have its own impact to remind us of the dialogues, to precipitate another set of waves, and to involve teachers.

Because of NIE support, the papers presented here were largely drawn from the fourth IMPACT Conference, where the focus was on the integration of child language development research into curriculum and instruction. In addition, a few papers were selected to fill an important aspect of child language development research, because they were broad in perspective, and because they were well received by conference participants.

The papers are grouped into four sections. The first section, Child Language Research, provides up-to-date insights into learning oral language as well as written language. Halliday's paper presents a view of language use which can be used for curriculum development. Dybdahl raises questions about the role of metalinguistic awareness in language learning. Dale looks for both individuality and universals and raises concerns about what this means for understanding child language development research. Both Dale and Ferreiro examine the relationship between oral language and written language, with Dale focusing more on reading and Ferreiro on writing. Ferreiro adds a unique Piagetian perspective to written language development in young children. Chomsky explores using children's intuitive rules about grammar to highlight their understanding and raise their conscious awareness of the rules of their language.

Section II focuses on Child Language in Schools. Smith outlines a language and thinking curriculum, providing not only a theoretical rationale, but also specific classroom activities. McKenzie also shows how a rich classroom environment enhances oral and written language, highlighted by transcriptions of actual interactions by children. Hickman shows how the language of literature enhances the language learning environment, while Cazden explores peer dialogues in schools to study the roles of teachers and students in language learning.

In Section III, Clay and Huck both explore Child Language Research and Teachers. The former investigates an in-service program for teachers in schools while the latter looks at teacher education. Each presents specific suggestions for continuous teacher education. King and Goodman provide their reactions to all the conferences in Section IV. They participated in all of them, served as reactors a number of times, and their overviews provide ideas and suggestions for continued impacting of child language development research for purposes of the development of curriculum and instruction. Finally, in Section V Jaggar provides a list of readings for teachers so they may continually inform themselves. Also a bibliography of recent works cited by contributors to this monograph is included.

There are many people to thank for the development of this volume as well as for the four IMPACT Conferences. We all had to work hard cooperatively to reach this moment--a volume on Child Language Development Research which would have impact on classroom experiences. This volume is not only the result of the work of the editors, the financial supporters, and the authors of the articles. It also represents the participation, encouragement, and excitement of every participant in the conferences--whether speaker, workshop presenter, convener, or member of the audience. We thank you all, keeping in mind that our work is not finished. It is only through a cooperative effort to organize ways for continuing dialogue and research about child language learning among teachers, researchers, teacher educators, and parents that there will really be an impact on the classroom, and on the *child*, to whom this volume is dedicated.

Y.G.
NCTE President 1979

D.S.
IRA President 1979

I. Child Language Research

Three Aspects of Children's Language Development: Learning Language, Learning through Language, Learning about Language

M.A.K. Halliday
University of Sydney, Australia

I would like to share with you some thoughts on the subject of language development; taking as my point of departure the fact that language development is something which is taking place naturally, with every child, long before the processes of his or her education begin.

There are, I think, three facets to language development: learning language, learning through language, and learning about language. In a sense, and from a child's point of view, these three are all the same. But in order to understand them properly, we need to consider them apart; this will enable us to see where each facet enters into the overall growth and development of a child.

First, then: "learning language." A child starts learning language from the moment of birth; newborn babies are very attentive listeners. No doubt, in fact, the baby has already started learning language before birth, picking up the rhythms of speech from their source in the mother's diaphragm. But from birth onwards the child is actively involved in communication, exchanging signals with other human beings. For this purpose he or she must construct a language; and we are now beginning to understand something of how it is done.

In London in the 1960s I directed, for the British Schools Council, a research and development program in the teaching of the mother tongue. The team consisted of primary, secondary, and tertiary teachers, all working together. We produced educational materials such as *Breakthrough to Literacy* and *Language in Use*. During this period we were regularly involved with in-service courses of one kind and another, and I was often asked by the participating teachers if I could say something about the language experience that children had before they came to school. How much of language had they already learned, and how had they come to learn it? So I tried to build up a picture of what was known about this at the time.

That was the mid-sixties, when mainstream linguistics was in what is now known as its syntactic age; everything was seen in terms of syntactic structures, and child language development was no exception. The child's learning of language was primarily thought of, and frequently referred to, as the acquisition of syntax. Now, I found both of these terms misleading. I was unhappy with both the "acquisition" and the "syntax." It seemed to me that language development was essentially a process of construction, not acquisition; and that it was based on semantics, not on syntax.

There were at the time two prevailing views of language "acquisition," set up as being in direct opposition to each other but in fact, as is often the case with what are seen as competing theories, having many features and assumptions in common. One was labeled "behaviorist," or sometimes (the two being presented by their opponents as if they were synonymous) "environmentalist"; the second was labeled "nativist." The former stressed learning by imitation from without, the latter stressed learning by predisposition from within.

In both these accounts of the learning process the child is treated as an island. Here is the child, an individual entity; here is language, a ready-made thing-in-itself, and the child's task is to reach out, or reach in, and acquire it. In the behaviorist version language is "out there," and its structure has to be inferred from the experience of listening to it; in the nativist version, although instances of language are out there, its structure exists as a ready-made blueprint "in here," a specific language program with which the child is genetically endowed. Both these views were based on essentially the same metaphor, that of the child as an individual possessor and language as a commodity to be possessed.

As I saw it, a child is not an isolated individual, and learning language is not a process of acquiring some commodity that is already there. Learning language is a process of construction. More accurately, perhaps, we should use a term expressing mental construction, such as "construal" and "construing"; this would avoid the pitfalls of yet another kind of metaphor suggesting a product that is static and a process that could still be seen as located within the individual. Mental construction is not and cannot be an individual process. A child has to construct language, but he or she does not do this alone--rather in interaction with others; and the others are not simply providing a model--they are also actively engaged in the construction process.

Language learning is an intersubjective, inherently social phenomenon. So much for the "learning" part of it; but what do we understand by the "language" part? Here again we were faced with two rather unsatisfactory interpretations, this time coexisting in mutual ignorance rather than actively competing, one drawn from psychology and the other from linguistics. In psychological studies, language was generally seen as consisting of expressions and meanings, in the form of sensorimotor and cognitive schemata. In the framework of linguistics, language was seen to consist of expressions and structures, or phonology and syntax. Each recognized two components, but a different two: psychologists left out the abstract system of grammar that serves (at least in adult languages) to translate between meanings and sounds; while linguists left out the realm of meaning that lay (for them) beyond that abstract system. Neither model offered a rich enough interpretation of the language-creating process in which a child is engaged.

To understand this process we must combine the two accounts, producing a model in which language is a three-level construct; that is, there are three stages in the coding process, not two. Essentially, language is made of meanings: humans talk because they have something to say, not because they have clever tongues and brains. But the meanings have to be encoded in order to be communicated; and this is where the extra step comes in. Meanings are "first" coded in "wordings"--that is, lexicogrammatical constructs, or words-in-structures (grammar and vocabulary, in traditional terminology)--and these wordings are "then" recoded in expressions, which can be transmitted.

An expression may be anything that another human being can recognize; but there are three main kinds of expression: gestures, sounds, and writing. Gestures are used in infancy, and for limited purposes throughout life; and with a deaf child they come to be developed into a fully fledged system of expressions (the outward manifestation of a language known as "sign" which has systematic wordings and meanings of its own). With a hearing child, sound takes over as the principal means of expression; and after a time, in some cultures such as our own, it comes to be supplemented by a third medium, that of writing, which in turn affects the organization of the middle level of the code--the wordings of written language are significantly different from those of speech.

The fundamental task of a child in learning language is to construct a three-level system of this kind. And he or she does it, naturally, in stages--but always, I remind you, in interaction with others. The child starts by construing what I have called a "protolanguage." If my own observations, and the few others that I know of, are at all typical, the pattern of its development is something like the following. By five to seven months the child has learned to construct a symbol, some sound or gesture intentionally addressed to another person which that person will decode. He or she experiments with this for a month or two, and then at some time about nine months begins to construct a system of such signs organized around a small range of different functions, different kinds of meaning that he or she wants to convey. You know the sort of thing I have in mind. Maybe you are playing, bouncing the child up and down on your knee, and you stop, for a rest. He or she looks you in the eye and goes "Uh! uh!" This means "Go on! Do it some more!" Or you go into the child's room when he or she has woken up and points to a picture on the wall, looks up at you and says "Doh! doh! doh!" This means something like, "Where've you been all this time? -- now let's look at this together." It's a request for interaction through the sharing of a common experience. These symbols are part of the child's protolanguage.

In the terms just referred to, the protolanguage consists of two levels only. It has meanings and expressions--each symbol is a meaning/expression complex, a "sign" in the Saussurean sense--but it has no wordings, grammar, or vocabulary. The child's next task, having built up a protolanguage that is effective for his or her original purposes but limiting in that it does not allow different kinds of meaning to be combined, is to turn it into a language of the adult kind, a three-level system in which the meanings are first coded into wordings and the wordings then recoded into sound.

If we want to observe how children do this, one approach is to use structured observations and sampling techniques, with audio and video records of the same child for so much time each week, or of large numbers of children in particular experimental situations. These techniques have contributed an essential part of the picture. At the same time, they do not tell the whole story. We also need very intensive records of natural interaction, records which are best obtained by means of the oldest of the traditional methods used in developmental linguistics, the language diary method. We can learn a great deal from records kept by parents of their children's speech, particularly if the parent is trained in linguistics and has mastered the skills of observing and recording natural language. Yet there is a real dearth of detailed, informed, and informative case studies of children whose language has been followed through from birth. It used to be considered that a child had no language at all until he or she had, or had begun to develop, a mother tongue; that is, until words were spoken, recognizable as English or whatever language was used around the child, and even one or two incipient structures where the words appeared in combination. This typically happens somewhere between twelve and twenty-one months of age. My own systematic observations began when my child was about seven months old; at the time it seemed almost absurdly young, although subsequently I realized I should have started seven months earlier. Of course, the interaction that takes place during the very first months of life is not yet language; it is not even protolanguage, since the child is not yet exchanging symbols. But he is engaged in interaction, even if it is not yet symbolic; and it is important to investigate the nature of this "pre-protolanguage" communication and to understand how it evolves into communication of a linguistic kind.

The importance of case studies and of the naturalistic data they produce is that only through these do we get a full picture of a child learning "how to mean"--of language development as a semantic or perhaps "semogenic" process. The child is building up a resource, and it is a resource for meaning: a meaning potential together with the wordings and the sounds through which these meanings can be expressed. And, of course, the resource is a two-way resource, since it also includes the potential for decoding the meanings of others: meaning is an interactive process, not something you do on your own. This in turn implies an environment in which to mean; meaning takes place in social contexts that are shared with "significant others" that are part of the child's meaning group. These are the ones who are intimate with the child; they are usually quite a small group; mother, father perhaps, maybe one or two older brothers or sisters, sometimes grandparents if they live in the same household--people who are around for a significant part of the child's waking life. By "being there" they share the language-creating process with the child.

Now it is important to make clear what it means to say that they are sharing in the child's construction of the language. It does not mean they are making the same noises, serving the child's own expressions back to him or her. They are addressing the child in their own tongue, the mother tongue. But they are also there on the inside of the child's head, so to speak; not only do they know what he or she means, but they also know what the child understands. They are creating the system along with the child. But, surprisingly perhaps, this "tracking" by the others of the child's language development is entirely unconscious on their part. If you ask a mother, one who is actively and attentively conversing with a typically communicative twelve-month-old, what that child can say and understand, she cannot tell you; and if you ask her three months later to recall what went between them at the time, she has totally forgotten--because she too has moved on, as the child has moved on, to a new and more highly developed stage.

The child recognizes, also unconsciously of course, that he or she and the others are in it together; and the child learns very early to help the process along. Once when my child was just eighteen months we had been out for a walk together, and when we came back he was going through with me the things he had just seen outside: "ba" (buses), "tiku" (sticks), "gaaugaau" (ducks), and so on. Next in the list came "douba," which usually meant toast and butter. "Toast and butter?" I said. "We didn't see any toast and butter!" He looked me in the eye as though I were really stupid and said, very slowly and distinctly, "d-o-u-b-a." As it happens, his strategy didn't work; on that occasion I never got what he meant. But he knew that I hadn't understood, and he knew what there was that he could do about it.

As a child moves out beyond the home into the wider social groups of neighborhood and school, his or her linguistic resources have to meet new and greatly extended demands; and the resources themselves expand accordingly. No one is teaching the child to listen and to talk; he or she learns because it's necessary in order to succeed. Then, in our culture, there comes a time when language development is taken over by an institution created for the purpose, namely a school; and suddenly the child is required to become conscious of language--first because he or she has to master a new medium, writing, and adapt his existing potential to it; secondly because from now on language itself is going to be treated as educational knowledge, rather than just commonsense knowledge, and the school is going to take over responsibility for extending linguistic resources. The reason for these changes lies in the demands that will now be made on his or her capacity for "learning through language," which was the second of our main headings and which I shall come to in just a moment. Linguistically, the teacher is now *in loco parentis;* he or she will now be the one doing the tracking. But tracking the language development of thirty children in a classroom is, obviously, an entirely different matter from tracking the language development of one small child in the home; not only because it is impossible to do it, in anything like the same sense, but also because for the new caregiver, the teacher--as also for the child himself--language development has now become the object of conscious attention. And there is an inherent contradiction between this and the essentially unconscious nature of linguistic processes, a contradiction which many people never entirely resolve.

Of course, the greater part of a child's language development, even after he or she has started school, in most circumstances continues to take place unconsciously outside the school, in the family and in the peer group. The leading edge of the development of his or her meaning potential continues to be in informal, natural, unselfconscious speech. But the school takes charge of a particular and essential part of it, something that can only develop in an educational context. From now on language must function for the child as a means of learning all the other things that are learned in school. As well as reading and writing, and the range of new linguistic achievements that are associated with these--from spelling and punctuation to versifying and storytelling--a large part of all his or her other learning tasks, in mathematics, social studies and the rest, consists in mastering the requisite language resources. This does not mean simply new vocabulary, with terms to be defined; it means new ways of organizing discourse, new ways of meaning in the construction of a text.

It would take too long to illustrate this in detail. But a minimal requirement that this imposes on the child is the ability to vary the kind of language used according to the context of its use; so to round off this section I would like to cite three examples of the spoken language of nine-year-olds, showing both the complexity of meanings and structures that children control by this age and the way their language varies as we move from a structured interview to a more natural and spontaneous dialogue. These extracts are taken from a large corpus of recordings of children made in

England in the mid-sixties by the Nuffield Foreign Languages Teaching Materials Project, a sister project to the one I was directing at the time. In passage A, the child is talking to an adult interviewer and is listening to herself carefully as she goes along; it is rather self-conscious, monitored speech. In passage B, the child is still talking to the interviewer; but she launches into a personal narrative and becomes more absorbed, and so more casual, as the story progresses. Passage C has the children talking to each other; there was still an interviewer present, but they had forgotten all about her and were responding unselfconsciously and naturally to each other's turns in the dialogue.

Example 1

A. (Now, er--what did you do in your holidays? I hope not spotting another burglary or anything?)

--No! We went to the Isle of Man for our holidays last year. Er--we went by boat and it was called the "Manx Maid"; and, er--we, erm,--stayed at a place called Port St. Mary, erm--stayed in a boarding house which was just over the--well, the cliff was in front of us and then the sea. And from the bedroom we had a lovely view of the harbour. It was very nice there; not very crowded. We didn't have any real events; we just used to sunbathe every day, and went back for our lunch, then went down on the beach and sunbathed. We visited many places: Laxey Wheel, and the Witches Castle I think it was.

B. Well, last year my mother and father had gone out to see an open-air theatre, and it was late at night; and when they'd come home Mummy had got a tummy-ache and she couldn't go to sleep, and so she'd been just prancing up and down the kitchen. Anyway, at about--ooh, about quarter to one, somewhere round there, she heard these men who kept walking up and down, and ... they kept coming up the gangway and sometimes they tried the door—luckily it was locked. Anyway at about one o'clock I heard this terrible crashing sound and I woke up and I wondered what was happening. I was scared stiff and--you know how you are when you're scared stiff, so I thought it was somebody under the bed. Anyway Grandma was sleeping in the same room; she went to look out the window, but we couldn't see anything. Then Mummy and Daddy came in, and they said they'd heard it as well and they didn't know what happened. And I suggested it could have been a robber, but they said it w— you know: 'no.' Anyway, it had been a robbery, and there were some cameras stolen, and the chairs were all ...

C. (Do you—when you have a small baby in the house, do you call it 'it' or do you call it 'she' or 'he'?)

> Well, if it's just--if you don't know what it is, I think you ought to call it 'it,' because you don't know whether you're calling it a boy or a girl, and if it gets on, and if you start calling it 'she' then you find out it's a boy, you can't stop yourself, 'cause you've got used to calling it 'she.'
>
> Erm--Mrs. Symonds says that if--if some neighbor has a new baby next door and you don't know whether it's a he or a she, if you refer to it as 'it', well then the neighbor will be very offended.
>
> Well if it's in your family I think you should call it either 'he' or 'she,' or else the poor thing when it grows up won't know what it is.

(Recorded by Ruqaiya Hasan for
Nuffield Foreign Languages Teaching
Materials Project, Leeds & York,
England.)

Note: Turns in parentheses are those of the interviewer.

The first example, being the most self-conscious, is most like the written language we would expect to get from a child that age. The second is a little further away; while the third differs most of all from what we usually find in writing. For one thing, the grammatical structure of the third passage is too complex to be easily tolerated in a written text, whereas in casual speech it trips off the tongue of the speaker, and into the ears of the listeners, without any of them noticing its quite remarkable structural complexity. But the point I want to draw attention to here is merely the range of variation that the children are beginning to control in adapting their language to the different functions it is now being called upon to fulfill.

This leads me into the second heading, learning through language. It turns out we have already been talking about this for some time; we need hardly be surprised at that, since it is just another facet of the same basic phenomenon of language development.

"Learning through language" refers to language in the construction of reality: how we use language to build up a picture of the world in which we live. This means the world that is around us and also the world that is inside us, the world of our consciousness and our imagination. The great American anthropological linguists of the first half of this century, Boas, Sapir, and Whorf, gave us a deep insight into the part played by language in shaping and transmitting the world view of every human culture.

From the start, language is the main instrument we have for interpreting and organizing our experience. Not everything we perceive is "processed" by language, but most of it is; language is far and away the most significant instrument for building up our model of the universe and of our own place in it.

What is the origin of this process in a young child's developing language system? Our understanding of this is still very tentative and incomplete; but it appears that, as a child begins the transition from protolanguage to language--from child tongue to mother tongue--he comes to make a rather systematic distinction between two basic functions of language, which I have referred to as the "pragmatic" and the "mathetic," the doing function and the learning function. I have described this in my book *Learning How to Mean*, showing how my own child made the distinction explicit by his intonation pattern, expressing pragmatic by a rising tone and mathetic by a falling tone. The striking thing about this was that not only did he introduce into his own speech, more or less overnight at the age of nineteen months, a fundamental semantic distinction which has nothing corresponding to it in the mother tongue, but that his mother and those around him understood straight away what this opposition meant. Not consciously, of course; they were not aware of what was happening, nor was I until I got to that point in my analysis. But they responded immediately to the different meanings he was expressing. This is how it happened.

When Nigel was using language for pragmatic purposes, in the sense of "I want," for example "more meat!", "butter on!" (put some butter on my toast), "train stuck!" (get it out for me), he used a rising intonation. The meaning of this intonation pattern was "somebody *do* something!" and the significant observation was that somebody always did. Not that they immediately jumped up to do whatever he asked or give him whatever he wanted; the answer would often be, "You can't have any more," or "I'm busy; try and get it out yourself." But they responded--thereby unconsciously acknowledging the fact that the meaning had been a request for action, and making it clear to the child that they recognized it as such.

When he was using language in a "mathetic" function, saying things like "green light" (there's a green light there), "Mummy book" (that's Mummy's book), or "two buses," the intonation was falling. And I noticed that on these occasions nobody felt it necessary to say or do anything. Sometimes they acknowledged, saying things like, "yes, that's a green light," or they corrected him, "no, that's blue, not green"; but often they said nothing at all. And whereas if he got no response to a pragmatic utterance Nigel was clearly dissatisfied, and went on saying it until he did; if he got no response to a mathetic utterance he was not in the least concerned--he really didn't expect one. The meaning was: this is how things are; you can confirm (or deny) it if you like, but I'm really sorting things out just for myself. Nigel maintained this distinction between language as a means of doing and language as a means of learning consistently for about six months, until the time came when the grammar of speech functions of the adult language was well established in his own system; then he abandoned it.

Nobody was setting out to teach him anything. Nigel's learning, his construction of reality, was taking place through these little micro-encounters in which he decided what he wanted to talk about. Usually--always, at first--the experience he was representing in words was one that was being or had been shared with someone else; and that person might correct him if they thought he'd gotten things wrong. But the knowledge he was storing up was commonsense, everyday knowledge which the others could not have consciously imparted to him because they were not aware of having it themselves.

Learning through language typically proceeds by way of such "innumerable small momenta," to use one of my favorite expressions from Benjamin Lee Whorf; this is precisely what makes it so difficult to document and to illustrate in any very satisfactory way. I decided that I would try to illustrate by picking out a set of instances that were grouped around a single theme; and I chose the theme of "relativity in time and space" because it shows clearly how the child's picture of reality is different from ours. We can see from this how much mental adaptation the child must go through, as well as how much simple accumulation of experience, in order to achieve something like our adult view of the time-space continuum in which we live.

Example 2

10;0 (watching a bubble that floated for a long time without bursting) In germ time, how many years d'you think that would have lasted?

9;8 Daddy, if something is a mile long and half a mile thick you don't call it long. But if it's a mile long and only a centimetre thick, you do call it long.

8;4 (arguing with a friend) You can't see, in your sleep.
-- (I do. I had a dream last night; I saw in that.)
Well, you see with your backwards eyes, that go in, to the fantasyland, the other way, in a dream.

7;0 How do you see what happened long ago, before you were born?
-- (You read about it in books?)
No, use a microscope to look back.
-- (How do you do that?)
Well. If you're in a car, or in an observation coach, you look back and then you see what happened before. And you need a microscope to see what happened long ago, because it's very far away.

6;4 How old are you?
-- (Fifty.)
Then you weren't born when the Blackheath Hill track was taken up. When you're eighty, how old will I be?
-- (Thirty-six.)
Thirty-six! Ooh! When you're eighty, then you *will* have been born before the track was taken up.

5;5 If you started from Chicago instead of Glenview would you get to Minneapolis later? 'Cos it's further.
-- (No, you'd get there at the same time. You'd just start earlier.)
-- No, you wouldn't ... but ... (unable to work it out)

Starting with the latest one, we find Nigel at ten and a half years old looking in a mirror and wondering which is the reflection: them or us?

At ten, he watches a soap bubble floating for a long time in the air before it bursts, and asks, if one had the point of view of a micro-organism, how many years on the time scale it would have lasted. At nine years eight months he is considering the relative nature of values on one dimension when another dimension is made to vary: if two objects are the same length but differ in breadth, one will be called long and the other not. At eight years four months he is describing the nature of inner experience: seeing in a dream. At seven years, he is thinking about movement through time and space; and so on.

From one point of view, these could be thought of as failed attempts to construct the adult world. But each stage in that construction process represents a world view on its own, and makes sense to him inasmuch as the world ever makes sense to anyone. It is also, like the construction of the language itself, an interactive process--though in a somewhat different way. The child's construction of reality similarly takes place through interaction with others; but it seems unlikely that the others are tracking the process in the way that they are unconsciously tracking his or her early language learning. In other words, whereas a mother who is close to her child may have an accurate, though subconscious, mental representation of the child's language, she probably does not have, to anything like the same extent, a mental representation of the child's world view. The construct that is shared is that of the meaning *potential*, the language. How the child uses that meaning potential to structure his or her experience is something that cannot be shared, since that would imply nothing less than the sharing of all experience, including the inner experiences of thoughts, feelings, and perceptions.

There will, of course, be conflicts and tensions between the various different realities; this is where learning takes place, when there is some kind of tension between the child's world and that of the adults, or between different aspects of the child's own world, and the child's attempts to resolve it. There may also be tension between the language and the reality it is being used to encode. I became aware of an example of this at a very early age when my own child, at nineteen months, was just learning to control the meaning "two." One day he was sitting on the floor playing with his toys, when he held up a bus in one hand and a train in the other. "Two chuffa," he said, using his word for train. Then he looked at the two objects again, rather perplexed, and hesitated: "two ... two ..." Finally he gave up, puzzled and defeated; the problem was beyond him. The point is, however, that he clearly recognized that it was beyond him; he knew there was no way of interpreting the situation within his linguistic system. As it happens, there is no way of interpreting it in everyday English either; we learn to get by without a general term for "wheeled vehicle." There is a mismatch here between language and reality; or rather--since language is alwo part of reality--between the child's experience and the symbolic system that is used to encode it. Such conflict, far from being destructive, may in fact contribute positively towards his understanding of both.

My third heading was "learning about language"; in other words, coming to understand the nature and function of language itself. In one sense, every human being *knows about* language simply because he talks and listens. But this is unconscious understanding, in the same way that our *knowledge of* language is unconscious knowledge. It is knowledge stored in the gut, so to speak (which is where many cultures locate true understanding), rather than knowledge stored in the head.

How do we know such knowledge is really there? Perhaps the clearest demonstration of it may be found in the evolution of writing. Writing evolved very slowly over long periods by innumerable small progressions. There was no conscious analysis of language behind it. Yet every writing system embodies a deep insight into the nature of language, its semantics, lexicogrammar, and phonology. Such insight is brought to the surface only with the greatest difficulty; much of the history of linguistics has been a struggle to make explicit an understanding of language that is no more than must be present for writing to have evolved at all--and it is ironic that the main barrier to making it explicit has been writing itself, which having once evolved gets in the way and prevents one from seeing through to the language that lies behind it. (The nature of writing, and its relationship to language, remains to this day one of the least explored and documented branches of linguistics.)

It is important, however, to make a distinction between this kind of understanding about language, which is very difficult to bring to consciousness, and the explicit folk linguistics of the community and the classroom. This, like most folk wisdom, is a mixture of scholarly insights and superstition. (The same distinction arises in other spheres of knowledge. In medicine, for example, there is the unconscious "instinct" for what is good and bad for us, going back no doubt to the period in our evolution when we could tell the molecular structure of a substance simply by sniffing at it; and the explicit "folk medicine," likewise compounded out of a mixture of fact and myth.) The medieval grammatical tradition that found its way eventually into our classrooms was scholarly and perceptive; it was unfortunate, however, that it represented the philosophical rather than the rhetorical strand in Western thinking about language, which made it less relevant to education and everyday life. Hence its impact has usually been minimal, and it tends to be stored in people's consciousness in the form of misremembered precepts about linguistic trivia, its more important insights (e.g. into the nature of syntactic dependence) being ignored. A friend of mine who was a property surveyor in the public service once sent up a letter for the head of his department to sign, ending with the words "as soon as the lease has been drawn up we will send you a copy of it." Back came the letter with the word "it" crossed out and the wording amended to "we will send you a copy of same." My friend was incensed by this barbarism and complained to his superior, who said, in shocked reproof, "But you can't end a sentence with a preposition!"

The reason why this sort of nonsense is often all that remains from the study of language in school is that the kind of knowledge about language that is embodied in it bears little relation to educational needs. This is not to say that there is no place in language development for this third component; there is. Quite apart from its intrinsic value, it is necessary as a source of support to the other two. But there are two points to be made about it. The first is that much of the learning about language that is relevant to education is not concerned with grammar at all, but with other things such as register variation, language and society, different media of expression in language, and so on. Out of the 110 units making up *Language in Use* for secondary schools, not one was concerned with grammar; this was certainly going too far, but the reason for the decision lay in the second point, namely that grammar that was familiar to teachers was a grammar of the wrong kind. For educational purposes we need a grammar that is functional rather than formal, semantic rather than syntactic in focus, oriented towards discourse rather than towards sentences, and represents language as a flexible resource rather than as a rigid set of rules.

When children first recognize that language itself is part of the world they live in, and that it can be talked about like everything else, the metalinguistic terms they use are words such as "say" and "call" and "mean." (Note that these are verbs, not nouns; to a small child language is a process, not a thing.) A very young child can in fact report that something was said even before he has the word "say" with which to do it. When Nigel was nineteen months he and I were walking across an open field where some boys were flying a kite; the kite fell to the ground and the string lay stretched out across our path. "There's a kite there," I said. "Mind the string!" Sometime later, after we got home, Nigel said to me, "Kite. 'Kite. Mind string.'" There was a marked change of tone and voice quality between the first "kite" and the next; and I suspect that it was this that led me, quite without thinking, to interpret his little narrative as including a report of what I had said: "There was a kite. And Daddy said, 'There's a kite. Mind the string!'"

We still know relatively little about how children build up this unconscious awareness of language. It begins with the awareness that things have names; and from very early on--the end of the protolanguage stage--a child can ask for a name: "What's that?" This is soon perceived as a two-way relationship; once the concept of "What is that thing called?" is built into a child's semantics, it is soon followed by the concept of "What does that word mean?" Nigel at twenty months would play a meaning game, chanting a string of nonsense syllables and then asking (but without inviting an answer) "What that mean!"

It was not until much later--four years old--that Nigel began using nouns for exploring language. By then he could play the rhyming game, "I'm thinking of a word that rhymes with ...," with the word "word" as part of the formula; but when I was guessing and he wanted to give a hint, he would say, "No, Daddy, it's not a word, it's a thing." This distinction between words and things, which he made for himself, was in fact that between grammatical items (function words) and lexical items (content words); the hint, "it's not a word, it's a thing" was what he said if I had guessed, say, "she" where the correct answer was "tree." This distinction between grammatical and lexical elements in the vocabulary is one of the basic ingredients in our unconscious awareness of language; it is also one that is incorporated in the English writing system, in the principle that a lexical item must have at least three letters in it whereas a grammatical item may have only two (hence "by the bye," "he is in the inn" and so on).

A child's unconscious awareness of language is largely determined by functional considerations; and at the heart of his or her understanding is the awareness that "this is what I can do with language." From birth the child has been building up a picture of what language is for; he or she knows that it is a lifeline to the others that interact with him or her, and that, through such interaction, it is a means of doing and of learning. When we come to strengthen and extend the child's language development through education, we need to build on this awareness, relating the language work in the classroom to what the child already knows about language from experience. It often happens that the two bear little relation to each other, with the result that the child never realizes that what the teacher is on about is just an extension of something he or she already knows and already does. There is no need to impose an artificial discontinuity on the learning experience in any of the three aspects of language development I have been talking about.

Language development is a continuous process. Even the move into written language, which is often made to seem as if it was a totally new experience unrelated to what the child has already learned, is simply part of the same massive project in which every child is engaged, the construction of the ability to mean. This is not to imply that written language is just spoken language written down; as I pointed out earlier, the difference in the two media leads to significant differences in the forms that they serve to express. But the essential relationship between the two is a functional one. Writing evolved in the history of the human race in response to certain new and extended demands that people were making on language. It was being required to function in contexts that had not existed before; and these new contexts--commercial, religious, scientific--needed new forms of communication for the exchange of meanings. There was no *logical* necessity for the new symbolic systems to be mapped on to language, and at first, it seems, they were not; but it was not long before they came to be, since it was still the same cultural reality that lay behind them. The age at which we put a child in school is the age at which we judge him or her to have reached this point, where the child too is making new functional demands on his or her language--or at least where the nature of such demands can be understood if others make them. He also must learn that writing maps on to the words and structures that by this time are already embedded deeply in his unconscious knowledge of the world.

I hope that these three headings--learning language, learning through language, and learning about language--may help to clarify some of the early learning experience that forms the background to a child's encounter with language in school. When we think of language development, it helps, I feel, to see it as a complex process in which all these components are present. As I stressed at the beginning, they are not three things that happen separately; they are three aspects of a single complex happening. But if we are aware of all three we can perhaps understand the process more perceptively and take part in it in more richly varied ways.

Languaging about Language

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Recording children's language can become addictive.

Liar, liar
Pants on fire
Hanging on the telephone wire.

Many areas of focus are being followed in the exploration of the world of language acquisition. As language becomes more opaque (as Courtney Cazden would say), utterances such as the following become ever more exciting.

Yesterday I goed, no, went to the store.
The words are talking too.
Yes means no and no means yes.

The child who spoke the above utterances is 5½, and she seems to be interested in and unusually aware of her use of language. She loves to create foreign languages which include words, phrases, and alphabets. She meticulously assigns an alternative sound to each letter of the English alphabet, and if you agree to learn her language, she subjects you to a careful recitation of the invention. The language system is called alternately, "Spanish, France, or New England."

This young lady's apparent insight into language, and her obvious enjoyment of the language process, combined to suggest that metalinguistic awareness would provide an exciting perspective from which to view these collected samples.

The question then becomes "What is metalinguistic awareness?" Is it the use of language, such as a child changing "goed" to "went"? Is it a two year old judging a syntactically inverted sentence as silly? Is rhyming metalinguistic? Or, what about an awareness of the arbitrariness of language as a labeling system and the playful switching of the referents?

In terms of written language, a concomitant set of questions appears. Is the child's application of phonology in a spelling task metalinguistic? Does a use of context to assign meaning to an unknown word fall into this category? Or, is a pre-schooler's equation of the letter B on a storefront with the letter B in his name part of the metalinguistic concept?

The literature dealing with metalinguistics does not provide definitive answers to the questions. Researchers differ depending on their particular perspective in regards to reflection, access, consciousness, or awareness. Gleitman (1979) says, "The term access (to grammatical knowledge) can be added to the group of roughly synonymous expressions (for an ill-defined concept) including conscious report, metalinguistic knowledge, linguistic awareness, etc...." Varying definitions illustrate the lack of uniformity in the application of the concept. The following statements are paired to exemplify the different points of emphasis followed by researchers dealing with metalinguistic issues.

> "... we cannot attribute tacit knowledge of the subject-verb-object word order rule until the child can recognize violations of that rule and show by his corrections that the basis for his judgement is word order." (DeVilliers and DeVilliers, 1974)

> "... the ability of a speaker to reflect upon the rules he follows." (Gleitman, Gleitman and Shipley, 1972)

Note the intuitive use of language as illustrated by syntactic correction in the DeVilliers and DeVilliers statement, and the reflection upon the rules, as stated by Gleitman and colleagues. The difference between using language intuitively and reflecting upon language is significant.

> "... child's ability to concentrate on the sounds and patterns of language rather than on its communicative aspects." (Schwartz, 1977)

> "Metalinguistic awareness is not confined to grammatical structure ... training in school in auditory discrimination and analysis of words into component sounds is training in the metalinguistic ability to reflect upon sounds in the words one speaks and hears and to make deliberate, conscious judgements." (Cazden, 1972)

Judy Schwartz's use of the word "concentrate" and Courtney Cazden's use of "reflect" probably connote a different emphasis in lieu of Cazden's context of "deliberate, conscious judgements."

> "Metalinguistic awareness may be used to describe a child's ability to understand the reading register, the special terminology used to teach reading." (Johns, 1979b)

> "Metalanguage includes what a person is aware of about his/her language activities and what he/she is able to do about them." (Forest and Gary Waller, 1979)

Again, there appears to be a distinction between "understanding" as in the Johns' definition, and awareness, as used by Forest and Waller.

> "Mattingly believes that linguistic awareness is more a matter of access rather than consciousness." (Johns, 1979a)

"... reading requires recruitment of this conscious metacognition."
(Gleitman, 1979)

These definitions provide some obvious distinctions centering on the issues of reflection, awareness, and consciousness. The differences are significant, and if the concept is to be useful in terms of broadening our understanding of language processing, it needs to be differentiated. Questions, such as the ones formulated at the beginning of this paper, cannot be answered with any degree of uniformity unless some consensus is achieved.

The group which suggests that metalinguistic awareness is a matter of access, represented herein by DeVilliers, Schwartz, Johns, and Mattingly, deals with the individual's use of linguistic processes in a more intuitive sense. They study the accessibility of children's linguistic systems as they use language orally or interact with written discourse. The issue of consciousness becomes less significant than an exploration of linguistic issues as applied to literacy. Downing (1979) summarizes this position: "I am impatient to move on and willing to live with the uncertainties of how conscious awareness is."

The major distinction among positions is not one of incompatibility, but one of emphasis. Among a second group, represented herein by Gleitman and colleagues, Cazden, and Forest and Waller, the concern is with the children's consciousness of process, their control over and reflection on the application of linguistic knowledge as applied to oral language or literacy. Since the question of consciousness is significant in the collection of data, these researchers probe into the children's understanding, as evidenced by their verbalization. Variations of "why" questions are employed. "Why do you think so?" "Tell me about that." Outside of this issue of consciousness, the processes being investigated by both groups may be exactly the same.

There is thus a body of literature dealing with metalinguistic awareness and its applications to oral language and written language. Some of this group has formulated the criterion of consciousness in their examination of data, and others have not. To return to a question--is a young child's substitution of "went" for "goed" an example of metalinguistic awareness? The answer depends upon whose definition you wish to employ. "Goed" to "went" is a concentration on language in the sense of the Schwartz definition, and therefore metalinguistic, but to meet the criteria of the Gleitman et al. definition, reflection of the rule is necessary. To be metalinguistic in this sense, the example would need to provide more conscious information from the child regarding his or her insight into the use of language.

For the purposes of analysis in this paper, I prefer including the aspect of consciousness. Philip Dale says, "Metalinguistic awareness, the ability to think about language and to comment on it, as well as to produce and comprehend it, is late in developing." This definition is useful because it includes not only the use of language, but also reflection and verbalization. This selection does not imply any judgments on the relative merits of research dealing in consciousness rather than accessibility. More data need to be collected assessing levels of awareness in various linguistic processes under different circumstances and conditions before any statement regarding the relative value of consciousness can be made. Rather, the preference for Dale's inclusive definition is based on two considerations: (1) the issue of consciousness is an integral part of much serious research and a definition needs to be comprehensive enough to include this data; 2) the field of metalinguistics relates to other areas of metacognition which are strictly defined in a conscious, reflective sense. These two considerations are expanded below.

First, many researchers are probing the issues of consciousness. Does awareness of linguistic processes promote literacy? Does the recognition of the abstractive qualities of language facilitate cognitive development? Cazden (1972) perceives that consciousness and reflection are important aspects of learning. "Finding ways to help them (children) become consciously aware of and reflective about those experiences seems harder, but it is the heart of true education." Gleitman, Gleitman and Shipley (1972) says, "The question is whether they can also contemplate the structure of the language, whether they know that they know." And Ferreiro (1972) says, "In other words, it seems plausible that the understanding of writing demands a certain amount of reflection, and conceptualization on spoken language, a certain 'metalinguistic awareness'." The knowledge that can be gained from a probing of the child's consciousness may yield important understandings of language processing.

The second reason for the inclusion of consciousness in the definition relates to other areas of metacognition. Brown (1980) strictly defines the concept of metacognition in terms of a "control processor" which allows for the development of self-awareness, or knowledge of its own workings. Metacognition is the superset under which various areas of knowledge become conscious and are controlled and reflected on. Explorations are being conducted in metamemory, which is a person's knowledge and control of his or her memory processes; metaproblem-solving, a person's knowledge of their problem-solving procedures, etc. Metalinguistics would seem to be a related part of this conception of metacognition; to change the scope of the definition is to promote confusion. Again, there is support for this interrelationship of metalinguistics and metacognition in the literature. Papandropoulou and Sinclair (1974) state, "It is the length of the time-lag that, in our opinion, can only be accounted for if 'rule-awareness' and 'reflection' on the nature of 'intelligent activity' are considered in the much larger framework of cognitive development in general." Cazden (1972) says, "Metalinguistic awareness is one aspect of general cognitive development." Gleitman and colleagues conclude, "Developmental evidence suggests that these various meta-cognitive processes may be closely related. In particular, their time of emergence seems suspiciously close to the five- to seven-year age range in which we found adult-like performance in meta-linguistic tasks."

It is hoped that this examination of the definitional divergency illustrates the necessity for clarification. Metalinguistics in the metacognitive sense is not regarded as being more useful than the intuitive awareness sense of Mattingly, but it does enable researchers to study aspects of the process not accessible from intuitive awareness alone.

Categories for the Classification of Metalinguistic Data

Based on reviews of the literature and explorations of child language, I am suggesting that there is an obvious continuum extending from the use of language to the ability to abstractly reflect on language. Any collection of data involving an investigation of language about language spans a wide range of responses. A categorical system for classifying such language may be useful. I am suggesting four categories for such classification: (1) the use of language; (2) developing metalinguistics; (3) conscious metalinguistics; and (4) scientific metalinguistics. Each category will be examined in detail, both in terms of attributes and examples of actual child language.

Use of Language

The beginning of the continuum is characterized by a lack of verbalization or insight concerning the linguistic processes being employed. Language samples which illustrate the use of language may include an evaluation of language appropriateness, and perhaps even a correction according to a rule violation. There is not, however, any insight in the process that can be communicated to the interviewer. The following sequence, involving a subject being asked to comment on the rightness or silliness of a sentence, is an example.

Interviewer: George frightens the color green.
Subject: No.
I: Why not?
S: It doesn't sound good.
I: Why not?
S: Oh, I can't tell you, I don't know.

In this sequence it is clear that the subject doesn't accept the sentence. Her response, "It doesn't sound good," indicates an evaluation of the language in the holistic sense of the sentence. She does not, however, even try to give any explanation of her judgement. There is no reference to surface structure elements, no partial attempt at elucidation. We have in effect no information from the child except that, in an apparently intuitive sense, she does not accept the sentence.

Children learning language intuitively may respond to a "why" question, but in an inappropriate fashion. The following is a good example.

I: Do you like riddles?
S: Oh yeah.
I: Why do you like them?
S: Because I have um ... two riddle books.

The subject may indeed enjoy riddles, but clearly has no way of explaining her enjoyment to me, or probably to herself.

Often a cheerful "I don't know" is the response to a probe.

I: Can you tell me what a word is?
S: A word is ... I don't know.
I: You don't know what a word is?
S: That's a hard one.

Again, no information is offered. Some typical responses in this category are: "I don't know," "It just doesn't," "You can't," "You can't say that," etc. There is, in some cases, a judgment being made but no understanding of the interviewer's question or perhaps no way of verbally responding to the question.

Children are excellent users of language intuitively, and their inability to verbalize about their linguistic processes in no way detracts from their sophistication of language use. Many adults would be unable to answer the question, "What is a word?" Most of us have no functional purpose for defining such a concept. We are quite able, however, to use words intuitively both in oral and written language, and to employ the word "word" appropriately in various contexts regardless of an inability to verbalize a definition.

Regarding one of the original questions posited at the beginning of this paper, the child is thus using language as he substitutes "went" for "goed" in the stream of his verbalization. Playful manipulations can also be categorized in this section, as in the following. A four-year-old boy was standing inside the house talking through a screened window to his friend. The conversation was being terminated and Anders said "good-bye." He then picked up a string of bells, shook them, and said, "When I do this, that means good-bye." He was using an alternate representation for his meaning, but there was no insight whatsoever on a conscious level. This little boy was using language. The sophistication of language use is not being regarded as metalinguistic, but rather the language user's degree of awareness or insight, overtly stated, into his linguistic processes.

Developing Consciousness

This category is distinguished by some attempt to explain the process, either correctly or incorrectly. The child begins to conceptualize that language has its own identity and purpose. There is a use of language to describe language; some characteristics are: functional explanation; a focus on the surface structure uses; partial explanation; and use of concrete examples to describe the emergent concept. The child is speaking generally from his private world of experience. Applying Smith's (1976) discussion of private and public conceptualizations, children's language in this category shows a pervasive attempt to relate themselves to their examples. Learning is an individual affair, and attempts at explanation will be personal.

Consider these examples.

I: What is spelling?
S: Spelling um ... is um ... spelling your name or something like that. (Note the use of partial explanation, personal experience, and functional definition.)
I: What dress does every girl have that she never wears?
S: (No response.)
I: Her address. ... Do you think that's a funny one?
S: Yes.
I: Why is that a funny one?
S: Well, because um ... she wears dresses and her address ... dress. (Note the attempt at explanation, and the focus on the surface structure of the language.)

I: Golf plays my sister.
S: No.
I: What's wrong with it?
S: Golf can't play sisters. Or play people.
I: It can't?
S: People have to play golf. (Note the use of concrete language examples.)

An illustration of a very personal response is shown in this situation where a pre-school child is being asked to comment about the print on an assortment of grocery labels.

S: That's one of mine. (Points to letter "A")
I: One of yours?
S: Yeah, like in Anders. (Note how the subject is relating to the letter in a very personal, possessive way.)

These language samples show an attempt to deal with some linguistic processes on a level of developing consciousness. There is a growing ability to look at language abstractly, because otherwise the child would have no understanding of what the interviewer was asking. If language is being used on a purely intuitive level, the child must regard the interviewer in surprise and/or disbelief when asked "why?" The typical responses from the previous level, "use of language," are examples of an inability to deal with language in any type of consciousness. When viewed in this comparative context, the difference between using language and developing concepts of awareness becomes more apparent. The child whose concepts are developing responds to oral language with a greater awareness that language can be manipulated and a greater awareness of control over language use. In response to written language, the child attempts to deal, on a conscious level, with some systematization.

Conscious Metalinguistics

On this plane, there is an ability to reflect, control, and verbalize about linguistic processes. Language has entered a more abstract plane, and the child can put it aside and regard it. Vygotsky (1972) describes this state of consciousness.

> Similarly, the school child passes from unformulated to verbalized introspection; he perceives his own psychic processes as meaningful. But perception in terms of meaning always implies a degree of generalization. Consequently, the transition to verbalized self-observation denotes a beginning process of generalization of the inner forms of activity. The shift to a new type of inner perception means also a shift to a higher type of inner activity, since a new way of seeing things opens up new possibilities for handling them.... In perceiving some of our own acts in a generalizing fashion, we isolate them from our total mental activity and are thus enabled to focus on this process as such and to enter into a

> new relationship to it. In this way, becoming conscious of our operations and viewing each as a process of a certain kind--such as remembering or imagining--leads to their mastery (pp. 91-92).

This describes the type of control over language which is classified as conscious metalinguistics. The explanation shows a consciousness of the process involved. Generalization of the expressed concept becomes probable. The insight will be consistent, not just a part of a verbose explanation.

Consider this example taken while the subject was involved in a spelling task.

> I: Are you saying the word?
> S: Yeah, so ... so I won't forget what's at the end or in the middle or at the first.
> I: What are you doing now?
> S: Well, I'm thinking what ... the letter sounds like ... so I can spell it right, you know.

This sequence shows an awareness of the process, and a use of strategy. She is undoubtedly generalizing her insight when she engages in other spelling tasks. The interviewer can quite easily determine consistency by returning to the same task and paraphrasing the questions. If the child does not offer the same conscious insight, the segment can be classified as developing.

Here is another example offered as an explanation for changing the pronunciation of "big" to "pig" while reading.

> S: I know I thought it was big ... because it .. as ... it goes ... ig, ig, but I looked at this and it wasn't a b, it was a p."

Here again there is an awareness of the process, and a use of strategy which shows reflection and control. Probably the context of the word cued her to regress and examine "big" in more detail. When she did so, she correctly changed the word to "pig." Her explanation indicates not only consciousness, but the ability to verbalize quite lucidly that consciousness.

Scientific Consciousness

This category is necessary to hold knowledge that a linguist, or other such professional, would have. A reflection about linguistic concepts such as phonology, syntax, pragmatics, semantics, etc. leads very quickly to the distinction between a layperson's knowledge and that of a language student. For the study of children's language, this category will have limited usefulness. The system would be incomplete, however, if the technical, sophisticated, theoretical insights were not accounted for.

This concludes the description of the levels of the continuum. In summary, four levels are proposed: (1) use of language, (2) developing consciousness, (3) metalinguistic consciousness, and (4) scientific consciousness.

Some general comments on the use of the continuum need to be stated. First, the researcher needs to know the context of the language before it can be categorized. This continuum is designed to classify consciousness of language processes. The context of the language may be necessary to identify the process the child is dealing with. Until the process has been isolated, it is impossible to make any statements concerning the child's awareness. For example, refer back to the spelling sequence in the metalinguistic consciousness section. The child says, "Well, I'm thinking what ... the letter sounds like ... so I can spell it right, you know." Her verbalization exactly fits the context of the situation. She was repeating the word and trying to hear the sounds of the individual letters within the context of that word. She is in some way dealing with graphophonics. With this information known, her consciousness of the process can be determined. In this case, she makes a very reflective statement describing her process and her control. The statement does not include technical language, but it demonstrates an appropriately metalinguistic consciousness of her use of language. This child did not spell the word correctly, but correct spelling is tangential to the issue. Usually, language processes cannot be isolated and consciousness cannot be determined unless the language sample is recorded with some background of context. Without this information, classification of data becomes a random assignment.

Secondly, any individual's metalinguistic knowledge will distribute unevenly across the continuum. Development of a cognitive state which allows consciousness to occur does not cause all intuitive language use to suddenly be conscious. A child whose development allows reflection on processes will develop such reflection as the need occurs. In looking again at the spelling sample, this child has some awareness of her applications of language as applied to spelling. It has some obvious use for her, and her use extended to a very deliberate, conscious strategy. On the contrary, refer to the section on use of language and this same child's inability to verbalize any explanation of what a word is. She successfully uses words in oral and written language, but evidently has had no function for developing her concept of wordness beyond an intuitive application. The point should be clear then that a particular level of cognitive functioning may enable an individual to become conscious and reflective of a particular linguistic process, but development alone will not promote consciousness. A child's development of control over a particular procedure will be dictated by need and usefulness.

Thirdly, the type of language used to describe language processes is related to the specificity of the question and the relation of the question to the child's task. Questions dealing with more broad and global procedures are less apt to be responded to in a metalinguistic way. On the contrary, a specific question relating to a task the child is engaged in may prompt some verbalization of process and illustrate control in a metalinguistic sense. For instance, in the illustration where the child applied some notion of graphophonics to spelling, she was involved in a spelling task and monitoring her strategy. However, when she was asked in a series of questions, "What is spelling?", she replied, "Spelling your name or something like that," a very functional definition. An interviewer needs to be aware of the different types of questions and their implications for response.

In conclusion, the concept of metalinguistic awareness needs to be explored and categorized in terms of educational relevance. The basic questions are, "What can we learn about language processing from children?" and "What language processes controlled on a conscious level, facilitate more effective use of oral and written language?" The continuum just presented is an initial attempt to provide a basis for categorization. An analysis of individuals' use and control of language processes will provide the applications. Metalinguistics is not a case of more equals better. On the contrary, linguists as a group, who certainly possess the most conscious insightful knowledge about language, are not particularly regarded as the most effective language users. If more reflective insight produced a related increase in the ability to use language, the parameters of application would be obvious. Since this is not the case, the parameters remain to be defined. A categorical assessment of children's metalinguistic language use, both in terms of an individual's developmental pattern and patterns across individuals, may provide fruitful knowledge. A summary collection of such data could be controlled for various developmental levels of reading, writing, cognitive functioning, etc. Through the amassing of such a body of data, patterns of linguistic awareness may emerge which could then be studied for applications to education.

Many interesting questions may be generated from the literature. Do any patterns of metalinguistic awareness exist for children involved in similar tasks? Can particular uses of strategies be identified which involve an access of knowledge as opposed to an awareness of knowledge? What are the individual differences children possess relative to the area of metacognitive functioning? Can consciousness of processes by facilitated by instructional programs or methodologies which directly address the strategy? What are the implications for remedial instruction that can be applied from fluent readers' linguistic awareness? Is an increase in metalinguistic knowledge associated with a progressive development of literacy? Does an awareness of the function of the task promote a determination of its form? What conception of language abstractness needs to be realized before literacy can be achieved? What conceptions of language abstractness are gained from a child's interaction with print? How does play with language facilitate use of language? Does play with language facilitate conceptions of language abstractness? How have adults applied their oral language conceptions to written language? Is there a difference in data generated from different groups of adults, i.e., physicists, authors, public speakers, blue collar workers?

I believe that children's language can provide information about language processes. The task of extraction is ours.

> I: OK, tell me what letters are.
> S: Letters? Letters are ... um ... very important. VERY important. You have to spell things like ... um ... like ... um ... I didn't know how to spell "the". I saw a thing that said T - H - E and I said, what does that say? It's important because then you learn.

Universals and Individual Differences in Language Development and Reading

Philip S. Dale

One of the most exciting recent developments in the various sciences concerned with language and language learning is the partial dissolution of the divisions between psychologists, linguists, educators, anthropologists--the goal being, as Forster put it in *Howard's End*, "only connect," to seek linkages as enthusiastically as distinctions. Though each of these fields has its own unique goals, and will ultimately need to develop its own theories and methodologies, there is much to share.

Attempts to find a connection between learning a first language and learning to read are one aspect of a larger attempt to construct a unified theory of language learning which would also cover second language learning by children and adults, and language learning by handicapped individuals. For the most part, this attempt has been based on the hypothesis of universals: universals which extend beyond first language acquisition by normal children to other populations and other tasks. Yet at least as good an argument, and possibly a better one, can be made for individual differences as a unifying topic. To take an extreme position, it is at least possible that the processes underlying learning language and learning to read might be quite distinct, yet individual modulations might be imposed on these two developments by learners' cognitive style, personality, or sociological factors, modulations which are reasonably consistent in the two domains.

The fact that this is a surprising claim at all is due to a curious fact about personality. Basically, there are two kinds of people in the world: those interested in how all people are alike and those who are interested in how people are different. The two sets are almost entirely nonoverlapping. A friend of mine once produced a metaversion of this proposition: "There are two kinds of people in the world: those who believe there are two kinds of people, and those who do not."

I have exaggerated the contrast above for effect. There is a sense in which there is no difference between these approaches. Those of us who

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study individual differences do so because we believe it will help us make sense of the world. Though every human being is unique, we are unique in predictable ways. It is useful to know some one fact about a person precisely because we think it is then possible to predict other facts about that person; for example, how he or she will benefit from a particular kind of instruction. Thus at a higher level, the goal is to establish some universal patterns of how individuals may vary.

In the following paper, I will first discuss "first-order" universals, features which appear to be common to all children acquiring language, and then, at some greater length, "second-order" universals concerning ways in which children are different.

A Few Universals of Language Development

The main thrust of the past fifteen years of research on oral language development has been to demonstrate the systematic nature of child language and language development, and to reveal the surprising uniformities among children, even children acquiring different language (Dale, 1976; DeVilliers and DeVilliers, 1978). To use Lois Bloom's terminology, there are universals of linguistics form, of linguistic content, and of linguistic use (Bloom and Lahey, 1978). In the 1960s it was commonly assumed that these universals reflected a universal, innate capacity for language, but it is now recognized that they may instead reflect a universal acquisition environment for learning language (Snow and Ferguson, 1977). Below are six findings that seem to be relevant for education in the language arts, including reading.

(1) Children normally reach school age with an astonishing amount of knowledge about their native language. Furthermore, they have the capacity to use this knowledge in the attainment of reading; even beginning readers' errors are likely to reflect the grammatical and semantic constraints implicit in the context (Weber, 1970). The premise of this series of conferences is that designing effective programs for fostering oral language development and reading must consider the resources which the child brings to school.

How much language *is* necessary for learning to read? I am skeptical of the view that there is a necessary amount of knowledge and the even stronger view that there are specific rules which are necessary. At most there may be a certain efficiency of overall linguistic functioning which is required. I am skeptical of these hypotheses because I know of no evidence favoring them, and there is at least one counter-example: the learning of reading in a second language in an immersion program. In the "St. Lambert" program in Canada (Lambert and Tucker, 1972; Tucker, 1975), English-speaking children spend their entire kindergarten and first grade year in a French-speaking environment. This includes learning to read. Their command of French is not very substantial by the end of the first grade (they are allowed to talk among themselves in English; nothing is forced, which I believe is a crucial element in the success of the program), yet they learn to read French. This ability generalizes to English virtually without additional training. I conclude that lack of specific knowledge of an oral language is seldom a hindrance in learning to read.

(2) Children's advancing knowledge of language is universally manifested in the appearance of errors of overgeneralization. The step from *went*

to *goed,* the shift from *I dropped it* to *I'm gonna fall this on you*, and numerous other apparent regressions reflect the child's attempt to encompass more of the language about him (Bowerman, 1978). Communication is not impeded by these errors; adults seldom have difficulty interpreting sentences for this reason, and children producing them generally comprehend the standard adult forms quite well. To advance past these overgeneralizations, children need only to be exposed to the adult means of expressing their intended meanings, not necessarily corrected.

(3) The most important external influence on language development is the nature of the parent-child linguistic interchange. The term "input" no longer seems appropriate, because research has shown that the crucial element is the special *interactional* nature of adult-child discourse (Snow and Ferguson, 1977). It is not a matter of direct teaching; in fact, Nelson (1973) observed that mothers who were most critical, selectively reinforcing correct usage and rejecting incorrect forms, had children whose language advanced *less* rapidly. Adults in general (not just mothers!) simplify their vocabulary and grammar and keep their content to the "here and now" though always staying above the level of the child's own productive language. Several lines of evidence (Dale, 1976, chapter 6) point to the conclusion that it is the influence of the child on the adult that causes the simplification to occur. Adult utterances which are not attended to or produce expressions of non-understanding are reformulated in simpler terms. The toal of the adult is "to communicate, to understand and be understood, to keep two minds focused on the same topic." (Brown, 1977). And so is the goal of the child. Courtney Cazden has referred to this as a paradox: on the one hand, adults and children talking with each other generally ignore issues of linguistic form; they fit a meaning to each other's utterances and respond accordingly. Despite this total concentration on meaning, children's acquisition of form is one of the great triumphs of early child development. In contrast, attempts to teach form directly are invariably failures. It is as if language can only be learned out of the corner of one's eye (or ear). What is needed is responsivity on the part of the child's conversational partners; the belief that it is possible and worthwhile to communicate with a young child. It is not surprising that young children do not learn language from a television set (e.g., hearing children of deaf parents, Dutch children watching German television; Clark and Clark, 1977). Psychologically speaking, the most important fact about television is that it is *not* responsive.

(4) One of the most striking universal aspects of development concerns sequences of development. Children in apparently diverse environments learn many aspects of language in a relatively fixed order. For example, aspects of word order for content words are learned before inflections; certain semantic relationships (location, possession, agenthood, etc.) are expressed earlier than others; some inflections are easier than others; early vocabularies of young children are quite similar and not correlated with frequency in adult speech; and others (Brown, 1973). The point is that children *select* the aspects of language to be worked on and mastered. We can set up the cafeteria, but children select what they will, guided by principles of salience and relative complexity that we are only beginning to understand.

(5) Somewhat paradoxically, much recent research with late preschool-age and early school-age children has led us to lower somewhat our estimate of their language knowledge, despite the production of correct forms.

It appears that children often use relatively local rules and specific forms, rather than the most general pattern available. Maratsos, Kuczaj, Fox, and Chalkley (1979) have provided several instances of this phenomenon. Most five and six year olds do not have the passive transformation in the adult sense, which is a purely formal rule that pairs a passive sentence with virtually every active sentence regardless of its meaning. Instead, children work with more semantically specific rules for verbs of surface contact and transportation. Thus they correctly interpret *the car is pushed by the truck,* but not a sentence with a nonactional verb such as *John was remembered by Mary,* or *Sally is loved by Bill.* Similarly, many children of this age do not handle the alternative negative forms *not* and *n't* by the same syntactic rules. In both cases, a reorganization and consolidation is later necessary. Linguistic reorganizations occur earlier, of course, especially in the semantic domain (Bowerman, 1978), but reorganization is probably especially significant in the syntactic domain in the school years (see also Ingram, 1977, for the argument that true generalized transformations emerge only at this point). Children thus often produce forms which are identical to the adult form, by quite different means. Such production is often a useful step for the child, and perhaps is a necessary one as well, but it is not the final step.

(6) During the 1960s most research on child language development concentrated on the form of children's utterances, the remarkable elaboration of linguistic structure that begins under the age of two and constitutes one of the major accomplishments of the preschool years. More recent research has made it clear that an appropriate understanding of language in general, and of the child's knowledge of language in particular, requires going beyond the form of the response to examine the content of utterances and their function in the social context (Clark and Clark, 1977). Language acquisition is one aspect of the development of a broader "communicative competence." Human language has many functions, including memory and problem solving, but in the early years communication plays the most important role. Language development builds on the social and communicative abilities established in infancy as much as on the cognitive basis. Research on adult-child interaction, discussed under point (3) above, illustrates this point, as does research on the steady expansion of children's repertoires of language functions, such as the ability to express, question, command, reject, and otherwise establish a social self.

Attention to functional aspects of linguistic knowledge may be helpful in eventually solving what is, in my opinion, the major puzzle concerning language development and reading. We know now that reading is a multidimensional process by which the reader constructs a mental representation on the basis of what is on the page, and his or her knowledge of language and of the world. If so much language learning is universal, presumably because it is relatively easy, why is there so much difficulty transferring this knowledge to the next context of reading? Frank Smith (1977) has argued that all that is needed is for the child to realize the print is meaningful. I believe the problem is more complex. It is striking that in all of the quite disparate disciplines concerned with language learning/reading, speech pathology, special education, second language learning, and others--under one label or another the issue of generalization remains the most serious difficulty. Why do some learners have such difficulty in other settings using a lexical form or grammatical structure they have mastered in the clinic or the language classroom? Why do some children have such difficulty using their sophisticated knowledge of oral language to identify the words signaled by print? And so on.

In fact, this issue is far broader than language; it pervades all of cognitive instruction. We can successfully train almost any behavior if we focus narrowly and intensively enough, but the more we do so, the more striking are the failures of generalization. Of course, knowing that the problem is shared is not all that consoling, since none of these fields has the answer. Nevertheless, interesting ideas are emerging in each area which might usefully be shared.

In the area of cognitive development, there is now good reason to believe that we have been somewhat misled by Piaget's use of the concept of structure, which suggests a mental tool which the child either has available for use on similar problems, or does not yet possess. Several kinds of evidence have led to this conclusion (Flavell, 1977; Moore and Harris, 1977). One is that the separate strands of development within a stage are not closely correlated, as Piaget's phrase "structure d'ensemble" might imply. In infancy, object permanence, imitation, means-end relationships, etc., are not correlated highly for individual children (Lewis, 1976). Similarly, in the transition to concrete operations in the early school years, classification, conservation, transitive inference, seriation, etc., advance somewhat independently, despite their resting on a common basis of concrete operations. A second and more dramatic kind of evidence is that many of the abilities taken as hallmarks of concrete operational thinking have significant precursors in the preschool years. As Gelman (1977) expressed it, there has been a "shift in emphasis away from the view that the preschooler is cognitively incompetent to one that grants the preschooler at least some competence." For example, preschoolers can show some awareness of invariance of number (the basis of conservation) if the number is small enough and they are not distracted by the perceptual reorganization (Gelman, 1972). Young children are not uniformly egocentric; under certain circumstances they can perceive reality and express themselves in a highly adequate and complete manner (Flavell, 1977; Donaldson, 1978). (Conversely, as Flavell put it, "We are 'at risk' for egocentric thinking all of our lives, just as we are for certain logical errors.") It is one thing to realize that other people have different perspectives; but it is quite another to maintain this view consistently and actually determine those other perspectives. Not surprisingly, children do much better in familiar situations and in less complex tasks than in unfamiliar, complex, or artificial ones. None of this research demonstrates that older children are not different from preschoolers; rather, the conclusion is that the difference is not one of presence vs. absence of cognitive structures. Gelman suggests that we view "training studies as procedures for uncovering a capacity as opposed to procedures for establishing a capacity from scratch." I suggest that development itself is often of this nature; what we observe, and try to foster, is in large part the extension of existing cognitive and linguistic processes rather than their establishment *de novo*.

In the light of cognitive research, it is not surprising that linguistic knowledge does not automatically generalize to the new task of reading, with its own unique demands on attention, memory, and other perceptual and cognitive processes. Many reading theorists have hypothesized that a certain level of automaticity of decoding, or a sufficiently large sight vocabulary, may be needed to bring the total cognitive-linguistic load within the capacity of the child.

The concept of language function may also be useful in addressing this problem. There is evidence that one of the chief sources of creativity in adult language—the fact that a given form may be used for a variety of functions (e.g., the use of a question such as *"Do you know the time?"* as a command to the listener to inform the speaker of the time)—is not characteristic of early language (DeVilliers and DeVilliers, 1978). For example, the word *more* may be used only to request more of a desired object or action, but not at first to name the appearance of a second car, for example. Other words may be used to name, but not to request. Plurifunctional use of forms appears late in the second year of life, according to Halliday (1975). But even then, and later, forms that are learned for specific functions may generalize to other functions only with difficulty. My hypothesis is that the problem of generalization is partially a problem of pragmatic overspecificity. Words, morphemes, and syntactic patterns do not automatically generalize to new pragmatic functions. In the clinic and the classroom, only a very limited set of language functions may be utilized, e.g., producing utterances in imitations, naming a picture in response to a question. It is no wonder that forms mastered there are not used in the far richer repertoire used outside these settings. In the area of reading, generalization is more likely when the communicative functions of reading and writing most closely approximate those of spoken language. (Scribner and Cole, 1978, have provided a very different and fascinating kind of evidence for this view in their study of the effects of literacy learned outside school among the Vai of Liberia.)

Much of the research just reviewed might be summarized in the statement that children are enormously successful at learning linguistic form, but they do so in a context where meaning and communication are primary. Errors are either signs of advance or of little importance, and correction plays a minor or even negative role. The communicative interaction between the child and the significantly older people in his or her life provides a rich source of data from which the child's own organizing principles select the aspects of language to, in turn, be mastered.

Differences in Language Development and Reading

Though iniversals of language development are real, substantial, and important, concentration only on similarities can cause us to miss other matters of importance. The differences among children learning their native tongue and learning how to read are more interesting and important than simple differences of rate of learning. In this section I will consider some of the known differences among children learning their first language (Katherine Nelson, 1981, has provided a recent and comprehensive review), and then turn to more direct evidence showing the way in which children use their oral language skills in learning to read is itself a dimension of individual differences.

Variation in Language Development

Only recently have psycholinguists begun to explore variation among children learning their first language, despite the importance of the topic for virtually every applied issue in language development/learning. For example, it is absolutely impossible to judge whether a particular pattern of development (in retarded or hearing-impaired children, or children learning a second language) is normal, though delayed, as opposed to deviant, unless we have a good estimate of the range of variability among normal children. It is sobering to realize how many "facts" about normal development are based on extremely small samples of children, and hence give us little evidence about variation. For example, Ravem (1973) used Klima and Bellugi's analysis (1966) of the development of negation by three children for comparison with a single child second language learner. Further research by Lois Bloom (1970), Carol Lord (1974), and others has shown considerable variation, especially in the early stages of negation. Below is a sample of dimensions of difference in first language acquisition which may manifest themselves in the process of learning to read, as well.

(1) Though all children have early vocabularies which primarily are names for persons and things, but also include other kinds of words such as personal-social words (e.g. *no, yes, please*), the relative balance varies. Some children have vocabularies almost entirely composed of names, whereas others have a higher proportion (though still small) of personal-social words. Katherine Nelson (1973) referred to children of the first type as "Referential," as they were talking primarily about things, and children of the second type as "Expressive," as they were talking about the self and other people. Like the other dimensions of differences to be considered, the Referential-Expressive distinction should be viewed as a continuous dimension, rather than a dichotomy. Interestingly, Referential children have a preference for learning and using nouns in constructing their early sentences, whereas Expressive children rely more on pronouns. Obviously there are fewer pronouns than nouns, but the speaker and listener must rely more on the social and physical context to decode the pronouns. This research suggests a broad diminsion of individual differences concerned with the content of language. At one extreme are children who are object-centered and learn many specific names for objects and people. At the other extreme are children who are person-centered, and rely on the fact that in conversation with another person a few pronouns and prolocatives (words such as *there, down,* to specify location, rather than specific phrases such as *on the floor*) can serve to identify the content. Children probably resemble their parents' style in conversation, but like all correlations between parent and child speech, it is difficult to know who is influencing whom. The important point is that both approaches seem to work well for normal children beginning to learn language (the differences diminish or disappear by about age 2½, as children of each style increase their use of elements of the other style). We can expect to find, and perhaps capitalize on, such differences. Perhaps young children can begin from either point just because their linguistic environment is responsive to their style. The language-impaired child, the child learning to read, the second language learner, may not be so fortunate.

(2) Word order appears to be an aspect of syntax which is fairly easily mastered by young children. Children acquiring English at first do not use the function words (the, of, in) or inflections (-ing, -s, -ed), but they do put the major content words in their proper order. The research of Andrya Ramer (1976) suggests that even though on the average most sentences

are in correct order, some children may produce more sentences with incorrect order. She studied seven children through an important developmental advance, namely, from one-word utterances through a point at which 20 percent of their sentences consisted of subject-verb-complement form (where complements could be objects, locations, etc.). She classified four children as fast learners and three as slow learners on the basis of how fast they passed through this developmental range.

Ramer found that speed of acquisition was correlated with qualitative aspects of language as well. Most important was the fact that the fast learners made *many* more word order errors than the slower children. Ramer interprets the difference as signaling "a difference in risk-taking behavior related to speed." She also observed a very interesting difference in the development of "complexity." Basically, the fast learners seemed to be learning several different sentence forms simultaneously, whereas the slow learners worked with one type of utterance at a time before moving on. The same observation emerges from her study of "subject vs. predicate specification." The slow learners elaborated predicates before elaborating subjects; the fast learners did both simultaneously. In research with Down's Syndrome children, I have observed that they make fewer errors of certain kinds, particularly developmental errors such as overgeneralizations (runned, etc.) than normal children.

Although the relevant empirical correlations have not been determined, the dimension of risk-taking just discussed is probably related to what might be called the analytic-holistic distinction. Some children try to learn whole phrases and use them appropriately, without much attention to the internal structure (or even details of pronunciation) of the phrase or sentence (Peters, 1977), while others prefer to gradually build up complex constructions from their parts, one step at a time. Lilly Wong Fillmore (1979) has pointed out that second language learners are especially likely to rely on whole formulas (do you wanna play? knock it off) due to their immediate need for functional communication; first language learners also do this to some extent. Thus, some children are more likely than others to begin with whole phrases while unaware of their internal structure. There is much less risk in this strategy, as the phrases are presumably correct, since they are imitated from other people. However, this approach is something of a blind alley for the child; eventually the child must analyze the phrases into parts to gain a truly productive command of the language, despite the risk of error. Although some children (see Ingram, 1979) proceed rapidly in the earliest stages of language by means of an imitative/holistic strategy, on the whole it is probably more efficient to be analytic/risk-taking. Down's Syndrome children, in comparison, rely far more heavily on fixed formulas than any normal child.

Although Ramer's finding of a correlation between speed of learning syntax and rate of errors (or risk-taking) does not prove that the latter attitude toward errors is the cause of faster learning, it is highly suggestive, and it certainly is consistent with other findings concerning errors and their role in language development. The analytic-holistic distinction is widespread through cognitive development, and might be expected to manifest itself in learning to read in whole-word vs. decoding differences, and in sentence-reading vs. word-identification differences.

(3) Keith Nelson (1977) and others have observed marked variation in the extent to which children do better on comprehension tasks than on pro-

duction tasks. One interpretation of these observations is that some children prefer to do their learning "in private," in the domain of comprehension, before expressing their knowledge "publicly" in production. This difference may be related to Ramer's notion of risk-taking discussed above, or it may reflect differences in a basic personality dimension such as talkativeness. Nelson has followed children longitudinally to see if these early differences have predictive power for later differences, and has observed an interesting pattern of correlations. When predicting language, language measures are more accurate at age 2½ while cognitive measures are more accurate at age 4½. He also suggests that perhaps "the most reliable predictors are the early measures that best represent the leading surface of change in the child's language--regardless of whether production or comprehension is the label on the measure." (K.E. Nelson, 1977, p. 600.)

Variation in the relationship of comprehension to production is likely in other areas of language learning, and indeed learning more generally. Winitz, for example, has proposed that it would be possible to learn to read in a purely receptive mode, in which the learner reads the materials and indicates comprehension by selecting a response picture or word without having to vocalize at all (Winitz, 1979). That such a program might work better for some children than others is suggested by the fact that some children are interested primarily in reading at an early age, whereas others are just as interested in writing.

As Katherine Nelson (1981) points out, we are far from understanding the extent to which these differences reflect differences in individual makeup, in language input, in type of speech expected by the environment, and in children's perception of the functions of speech. We do know that the type of speech produced by a child varies with developmental level and with the situation. It is also clear that all of the differences thus far observed are differences in relative balance of various processes of language learning and use. All children use nouns and pronouns, referential words and personal-social words, phrase- and sentence-units as well as constructed utterances, and they sometimes understand utterances they cannot produce, as well as vice versa. Together these facts imply that differences in language development are not biologically-specified dichotomies, all-or-nothing distinctions among children. They are examples of normal variation among human beings in complex task mastery and performance.

Variation in Reading Acquisition[1]

The research I have cited is only suggestive: certain differences among young children learning language may be reflections of style which will also be present when the children learn to read. In the present section, I turn directly to studies of reading. Though it is obvious to sensitive teachers and is a cliche among reading theorists that children learn to read in different ways, little research on children has taken this idea seriously. An individual-differences approach may help to reduce the confusion of data obtained in many areas of research. In particular, a strong case can be made that children vary considerably in the extent, and fashion, in which they make use of their knowledge of language in learning to read.

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[1] I am grateful to Nancy Ewald Jackson for allowing me to discuss some issues from her insightful review of the relationship between intelligence and reading, and to present some of her preliminary research findings.

The research to be discussed is taken almost entirely from work with extreme groups: very poor readers and very good ones. This is due in part to the paucity of research on individual differences within the normal range, and in part to the fact that the differences are likely to be especially vivid in such extreme groups. But there is another reason; evidence from these two groups is highly complementary (Jackson, 1979a). Reading is a highly complex process, requiring a system of interacting perceptual, linguistic, and cognitive processes. Opportunities for failure are numerous, as a deficit in any single process will adversely affect reading. Thus evidence from poor readers alone cannot constitute evidence for multiple paths to reading. In contrast, the varieties of success are likely to be much more limited, and therefore more convincing evidence for our case. It has been observed that many, but not all, bright children read early. It may be possible for children who are very strong in one ability or set of abilities to "break through" into reading in a way that is quite different from that of children who are strong in another area. The Seattle Project (Roedell, Jackson, and Robinson, 1980) is a longitudinal study of some 400 intellectually advanced young children. Some of the data discussed below is from Jackson's unpublished research (1979b; personal communication) on the determinants and nature of early reading. Doehring and Aulls (1980) have presented a useful summary of the reading skills and text properties relevant for effective reading.

Table 1*

Reading skills and text properties associated with different units and levels of written language.

		Levels	
Units	Visual	Grammatical	Semantic
passage	spacing	syntax	theme
sentence	punctuation	syntax	proposition
clause	punctuation	syntax	proposition
phrase	punctuation	syntax	attributes
word	spacing	class, inflection	attributes
letter string	sequence	pattern	-----
letter	features	-----	-----

*Adapted from Doehring and Aulls (1979), p. 39

The table can also illustrate one of the major divisions among reading theories today. One group of theories, e.g., LaBerge and Samuels, 1974, is often called "bottom-up," or perceptually-driven, because the reader is described as progressing to text comprehension only after achieving efficiency in encoding letters and words. A second set of theories is often called "top-down" or knowledge driven, e.g., Goodman and Goodman, 1977; Neisser, 1967), because conceptual and linguistic hypotheses are assumed to guide the analysis of perceptual input. It seems clear now that both types of processes are operative in beginning and in skilled readers, and cognitive theorists are attempting to map the relationships among the processes. A major hypothesis of the present paper is that the balance of these processes varies between individuals.

Now some examples of differences:

(1) Oral language ability leaves a very substantial amount of variance in reading ability unexplained. Highly verbal intelligence tests, e.g., the Stanford-Binet, only modestly predict reading. One striking example of this is the finding of children with severe language deficits associated with childhood autism and autistic-like syndromes who nevertheless have precocious reading ability (Huttenlocher and Huttenlocher, 1973). In a recent unpublished study of 34 extremely precocious children, the Vocabulary subtest of the WISC-R predicted Reading Comprehension on the Peabody Individual Achievement Test (PIAT) with a correlation of only .34 (Jackson, personal communication). The experience of the bilingual program in Montreal discussed earlier is further evidence.

(2) Baron (1979) and Ehri and Wilce (1979) found individual and sex differences in the use of orthographic information. Boys are more likely than girls to rely on spelling-sound correspondence rules in reading familiar and unfamiliar words. The sex differences were not predicted in these two studies, and were described as inexplicable. As Jackson (1979b) has pointed out, a tantalizing possibility is that this difference relates to the small but reliable sex differences in spatial ability in the elementary school years (Strauch, 1976), together with the hypothesis that spatial ability--the ability to represent and manipulate nonverbal visual information, as in matching patterns, recognizing relationships among patterns and analyzing patterns into components (e.g., the WISC-R Block-Design)--is central to the acquisition of decoding skills. Decoding requires, among other things, an analysis of complex orthographic patterns (words) into their component parts (graphemes) which are then matched to phonemic units and finally reconstituted into a smoothly read word. This hypothesis has yet to be adequately tested.

Variation in the ability to use orthographic regularity for the purpose of decoding has implications for the notion of "reading readiness." Goldstein (1976) has suggested that readiness might be more appropriately described as readiness for a particular reading program, and that a child functioning below threshold levels for a particular reading system might be taught more effectively by means of a simplified reading system which requires skills closer to the child's, than by attempting to modify the readiness skills by a readiness program.

(3) Perhaps the most crucial question in understanding and teaching reading is the relationship between word identification and sentence- and passage-comprehension. Here the distinction between "bottom-up" and "top-down"

theories is clearest. Must the reader identify all, or most of the words, in order to construct the meaning of the text, or can partial knowledge of the text, together with world-knowledge, serve to guide, or even replace word identification? Research on disabled readers (Chomsky, 1976; Kendall and Hood, 1979) clearly demonstrates a separation between these two abilities. Kendall and Hood, for example, were able to identify two subgroups of poor readers: the first with good word recognition skills but low comprehension scores, and the second with poor word recognition skills but relatively good comprehension skills. The distinction was supported by both standardized tests and oral reading measures. The high comprehension/low recognition students read more slowly and made more recognition errors. However, an error analysis shows that they used contextual information more effectively. Jackson's observations of precocious gifted readers also suggest a continuum that ranges from children who read slowly, but precisely (generally along phonic lines) to children who read more fluently, making errors which are, however, consistent with the context. In her sample, all of the children were reading relatively successfully, despite the difference in approach. If it is the case that some children preferentially proceed "bottom-up" and some preferentially proceed "top-down," they may benefit from direct activities. The first group may benefit most from vocabulary instruction and word-recognition practice; whereas the latter may benefit more from emphasis on sentence- and passage-meaning, and typing the content of the passage to areas of the child's knowledge.

(4) Jackson observed that some of her precocious readers were primarily interested in reading, whereas others were interested in writing from the beginning. This observation is reminiscent of the work of Read (1971) and Chomsky (1977) on invented spelling. Even four year olds have some knowledge of letter names and sounds and can use this knowledge to invent their own consistent and abstractly structured, though idiosyncratic, spellings for words. Read and Chomsky have suggested spelling as the beginning point: "The natural order is writing first, then reading what you have written." (Chomsky, 1972, p. 120) Compare this approach with Frank Smith: "You learn to read by being read to." Both statements err by being universal statements; not everyone learns the same way. Self-invented spelling may be particularly motivating and effective for some children.

Interestingly, children are not confused by discrepancies between their own spelling and what they read. They may decode standard spelling even better than their own. But then, children are not confused by the discrepancy between their own sentences and the sentences they hear in the preschool years (in fact, they are disturbed if parents try to mimic their own grammar). The deviant nature of early spelling declines as the child's familiarity with print grows; as in the case of oral language, correction is neither necessary, nor even helpful, according to Read.

(5) One popular current hypothesis about language development and reading is that metalinguistic awareness--awareness of the basic units of language, such as phonemes, syllables, and words--is necessary for learning to read. Ehri (1979) has recently reviewed research on linguistic insight (her term for metalinguistic awareness). As she points out, the data are not entirely consistent. Her own position, that the beginning states of learning to read greatly facilitate the development of metalinguistic awareness, is supported by the several studies which find that beginning readers do

substantially better than prereaders on tests of language awareness, and have a much reduced variance in awareness. But the opposite position, that metalinguistic awareness is an important precursor of learning to read is also supported by the fact that some, though not all, children have a certain degree of language awareness before reading, and they are often among the better early readers. Ehri concludes that experience with written language is not necessary for acquiring lexical awareness, but it may be very helpful. Furthermore, the relationship between such awareness and reading may be interactive, each a consequence of what has occurred and a cause of further progress. I would add to this undoubted correct view the notion that balance varies from child to child.

An interesting example of the feedback from reading to thinking about language is provided by the finding of Francis (1973) that some of the children in her study reported that they "thought a pause occurred between all spoken words, because there were spaces between words in writing." As in the case of use of spelling-sound correspondence rules, there is an intriguing possibility of a relationship to spatial ability. It is characteristic of spatial thinkers that they translate nonspatial problems into spatial imagery, e.g., the report of many scientists, such as Einstein (Ghiselin, 1955) that spatial imagery underlies their thinking, and also the psychological research of Clark and Chase (1972) that some people, when asked to judge whether a sentence matched a picture, e.g. "star is not below plus," translated the sentence into an image and then compared the images, whereas other people translated the picture into a sentence and then compared sentences.

The origin of all these differences is mysterious at present. They may be due to all differences in the development of lateralization of brain function (Leong, 1980; but see Kinsbourne and Hiscock, 1977, for a more skeptical view), in cognitive style, in reading program, or in teacher expectation.

As in the case of dimensions of individual differences among children in learning their native language, it is of great theoretical and applied interest to determine the extent to which these various dimensions are related, and therefore predictable. Are speed of reading, use of phonics, "bottom-up" processing, interest in writing, etc. correlated? It is likely that there are several somewhat independent dimensions of difference rather than only one. But just how different children can be when these various dimensions do "line up" is shown in two of Jackson's case histories:

> From the age of two years, Susan's Stanford-Binet IQ has been above the scale limits for the test and she has performed particularly well on vocabulary and verbal reasoning items. Her scores on the Wechsler Block Design and Mazes subtests, however, have ranged from average to superior but not extraordinary levels ... At the age of three years, she read fluently but imprecisely, seeming to rely on an extensive sight vocabulary. She disliked reading aloud, and when she did so, skipped quickly over unfamiliar words without pausing to decode them. She showed little interest in printing or spelling, and her skills in these areas were far behind her reading comprehension level. At age five, she finally announced to her teachers that she knew how to read very well and would like to learn how to write. Despite Susan's initially

> limited mastery of phonics, she as able, by the age of four years, to read independently such challenging books as *Charlotte's Web* and the *Little House on the Prarie* series. Throughout her preschool years, Susan delighted in the creation of imaginative poems, stories, and plays. By age five, she began to write these herself rather than dictating them to her parents or teachers. Susan is now six years old, and reading and writing are her favorite activities.
>
> Bruce, in contrast, provides the model for the high-spatial early readers. His scores on the Wechsler Block Design and Mazes subtests have been consistently very high since he was first administered these tests at age three, and he has sometimes earned Block Design scores above the scale limits for his age. Although Bruce's Stanford-Binet IQ has risen gradually from 132 at age three to 163 at age six, his scores on the Vocabulary subtest of that instrument have never been very high. By his third birthday, Bruce was an enthusiastic and skilled printer, as well as a competent reader. His mastery of phonics was excellent, and he read aloud in a slow, precise manner. During his preschool years, Bruce's favorite reading materials were picture books of cars and trucks, alphabet books, and dictionaries. He still, at age six, does not read the advanced stories that Susan has enjoyed for years. In the children's kindergarten year, while Susan was creating fanciful stories and poems, Bruce concentrated on projects such as the preparation of a beautifully illustrated, factually correct, and logically organized treatise, "All About Apples." He was the mathematics star of the kindergarten program, mastering multiplication virtually the moment the system was explained to him. His current passion is mathematics. He reads for information but not for pleasure.

Differences of this order of magnitude make it unlikely that there is a simple relationship among language skills, language awareness, and reading. A reader like Bruce does not seem to be relying heavily on his awareness of the syntactic and semantic structure of language. The most direct tie is apparently at the level of phonology; the components of written words are being linked with the components of spoken words. Readers like Susan may be proceeding in accordance with the hypothesis that metalinguistic awareness is a necessary foundation for reading. On the other hand, a high reading speed suggests that an intermediate step may not be necessary. The fact that written language is visual does not mean that conscious processing is required. Deaf children of deaf parents, learning sign language as their first language, link up the visual pattern directly to meaning; some children learning to read may do the same, treating print as primary linguistic material, not derived. In any case, groups of readers with relatively homogenous style would be ideal for research on oral language, metalinguistic awareness, and reading.

Because children face different challenges at each stage of reading acquisition (Doehring and Aulls, 1980), it is not surprising that any individual child may vary greatly in his relative success from one period to another. A proficient first-grade reader may not be so proficient in the fourth grade, and a successful fourth-grade reader may not be so successful at a secondary level, as the perceptual, linguistic, and cognitive challenges change. Indeed, the ability to read effectively varies for a single reader with the type of text. The different mix of skills and strategies required for reading lengthy expository texts, narrative texts about familiar events, technical materials, etc., may be reflected in the ways that lawyers, physicists, historians, and literary scholars obtain meaning from print. (Stricht, 1975).

Conclusion: On the Value of Research

In the discussion of this paper at the IMPACT conference, Ken Goodman and others rightly pointed out the dangers of rushing from the laboratory to classroom applications. There is a long and unfortunate history of applying research on individual differences by translating that research into a system of classifying and segregating learners and teachers. There are several fallacies in this translation. One is that any modest body of research can and should be translated into practice. Research evidence is usually gathered under very special conditions, from limited populations, and analyzed in idiosyncratic ways. Translation requires many kinds of converging evidence, for no one experiment, or even kind of experiment, is convincing by itself. And special kinds of research are needed to bridge the gap, research that is conducted *in* the classroom. But the most serious fallacy is that differences imply segregation. Such a view underestimates the ability of child (and teachers, too, for that matter) to understand and learn from human differences. The underlying assumption that learning occurs only when teachers provide precisely calibrated information for each child underestimates the contribution of the learner in selecting, attending, and transforming the input. What the child can learn is very much influenced by the environment. We provide a variety of materials, experiences, and challenges so that some proportion will fit each child's interests and level of development. The practical value of research on individual differences is that it gives us an idea of range that is necessary.

The belief that differences imply tracking also underestimates the flexibility of cognition and its development. Peters, who first described the analytic vs. gestalt (holistic) styles of early language structure, pointed out that her subject used the gestalt style in social contexts with mother, and in utterances with a primarily interpersonal function, whereas a relatively analytic style was characteristic of referential situations such as reading books with mother. Even the striking distinction between "sentence-matchers" and "picture-matchers" in the sentence verification task of Clark and Chase is highly permeable; Mathews, Hunt, and MacLeod (1980) found that it was quite easy to teach people who spontaneously used one strategy to use the other strategy efficiently.

Research has value to parents, teachers, and other practitioners even when it cannot be directly translated into curriculum content or technique. A few years ago I heard Melissa Bowerman give a talk on some fascinating errors children make with causative verbs, and why they make them. I returned from California, and immediately heard my son say *I'm gonna disappear you,* and a little later, *I'll come you back*—precisely the phenomenon Bowerman was talking about. Thus research findings often help us to see more in each child. Furthermore, research often tells us what *not* to do, or at least explains why something has not worked. The fact that metalinguistic awareness is so late in developing explains why children often have difficulty learning from the explanations and instructions we give them. Perhaps the most immediately useful implication of research on language awareness is to try to minimize the awareness requirements in our verbal communication to young children. Thus the main value of research is to increase our responsivity to children, to provide the most useful information possible for each child.

Finally, a general implication of the research experience is that it is hard to answer conclusively a research question. We may want to know whether a child does or does not have a concept. We must worry about the influence of the experimenter, the exact nature of the task, the materials used, the child's motivation, and so on. Teachers and parents have a similar problem. Judging a child's level, deciding the most appropriate next step, is very much like working with a theory, except that as teachers and parents we do not have the luxury of postponing a decision. What we need, as researchers, teachers, and parents, is to recognize our own human fallibility, and to always be open to change and revision.

The Relationship between Oral and Written Language: The Children's Viewpoints

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The relationship between oral and written language seems obvious to any literate adult. What else could the letters represent except the elementary sounds of the speech, even though this representation could only be approximate? What else could the series of letters with blanks in between represent except the words that we pronounce when we speak?

It is difficult for us to imagine that someone may not look at writing in this way. We do know that there are individuals who cannot interpret writing as we do (illiterate adults and preschool children). However this "cannot interpret writing as we do" is looked at as a "they cannot" or as a "they do not know."

The objective of this paper is to show how, long before knowing how to read and write in the conventional meaning of these terms, children are able to interpret in a consistent way--but in a way that is entirely different from ours--the written system that is our own. Moreover, our aim will be to show: (1) that there are modes of interpretations genetically ordered, preceding the acceptance of the basic hypothesis concerning the alphabetic system; (2) that such modes of interpretations, coming earlier in the development, are constituent parts of the final modes of interpretations (i.e. of those modes that are in agreement with the structure of the alphabetic system; (3) that writing--inasmuch as it is a socially established cultural object--is an object of knowledge, and that, being so, it imposes requirements to logical thinking, as much as it depends on the possibilities of assimilation which are determined by the logical structure of the subject.

We have studied this evolution through a multiple approach technique by applying the method of critical exploration which is characteristic of Piagetian studies. The general hypotheses that we put forward received their first validation through the data we obtained in our first series of studies carried out in Buenos Aires (Ferreiro and Teberosky, 1979). Afterwards, research conducted in Geneva and in Monterrey (Mexico) (Ferreiro et al., 1979) allowed us to go into more depth concerning some essential aspects of the problem. More recently, we were able to add a new dimension to our work through research carried out in Mexico City: a longitudinal study of a group of thirty children between three and six years of age whom we followed during a period of two years. They were selected in accordance with one variable which is fundamental for our work: Children of illiterate or semi-illiterate parents living under conditions of extreme poverty, on the one hand; and children of parents with university education who, because of their profession and/or way of living, make daily use of the written language, on the other. The examples that I will use to support the theses I present will come from this last kind of investigation.

From the multiple aspects of the evolution that we have studied I have selected one in particular: the evolution of the "spontaneous" writing (that is, the writing that is not the product of a particular training, nor the immediate reproduction of an external model).

Let us accept that those children, when they write, make an approximate correspondence between sounds and letters. They may face orthography problems, but they do not have any further problems with writing, because they are now functioning inside the alphabetical system of writing. In order to understand how they have reached that point, it is necessary to understand the conceptions of, for example, those children who have started writing with actual letters, but do not require that two words beginning with the same sound should also begin with the same letter. We also need to understand the conceptions that are at work even before that, as in the case of those children who write with unconventional signs, but organize the elements of their production in a linear order, very different from the order of the elements composing a drawing.

We will take as a starting point--for the purpose of this paper--the precise moment when we find a differentiation between two kinds of graphic representations: the drawing and the writing. When they start behaving as scriptors, children note the difference between what they conceptualize as a drawing (which they call by a name following the indefinite article) and what they think to be a piece of writing (waving line, or series of straight or circular strokes).

Silvia (a little girl of the slums) undergoes, in eleven months, the following evolution: series of circles without linearity (4;1), series of circles with linearity (4;8), a single circle for each name of an object of which the representation is intended (5;0).

A single grapheme for each image of an object is also a decisive moment in the evolution of Fernando (4;11), of Delfino (3;9), of Jorge (3;3), and of Nanis (3;10), all slum children.

The next step is a very important one: the requirement of various graphemes for the writing of a single name. At the moment this requirement starts being exhibited, the amount of letter-like forms being utilized is quite variable, and the variations do not correspond to any criterion which may be considered as objective: The child knows that he needs several letters, without knowing how many, and without knowing any reason that may determine the range of variability of such an amount.

A short time after, however, such a "fluid" quantity is replaced by an internal organizing mechanism: a minimum quantity--which sometimes has a tendency to become a fixed quantity--below which one cannot go without going against the "readability" (that is, the intelligibility) of the text.

This requirement of a minimum quantity demands some comments because it has a decisive influence in the following evolution. From the beginning of our research, in 1975, we used a classification task with the following instruction: Which cards are good for reading? (i.e., which ones are "readable.") The cards showed single letters or numbers; strings of two, three, four, five, and six letters (displaying either real words or impossible combinations like XYZ); real or psuedo-letters (in isolation or in combination); strings of four letters all the same; capitals and hand written; etc. We did not ask children to read the cards, but only to determine whether the cards showed what is necessary for a reading act. Ambiguous as it is, this instruction nevertheless elicited a striking behavioral consistency among children, and allowed us to establish that a minimum number of characters and their variety are the most important characteristics of a "readable" string. (The same criterion was found by Lavine (1977) using a different instruction, as she asked for criteria for writing and not for readability.) A card with the same letter repeated is rejected, because "It is always the same one; it cannot be read," and a card with one or two graphemes--even if they are real letters--is also rejected, because "There must be several ones." Even if children often find it difficult to make explicit the "how many" of the "several ones," their classification shows that the critical number is three (actually the minimum number of characters demanded for readability is 3±1).

This same "magic" number three is also demanded in their own production of a piece of writing (very often this requirement of a minimum quantity appears in spontaneous writing before it is shown as a classfication criterion; that is, it is shown before in contexts where the writing is interpreted th n in contexts where only the formal characteristics of the writing are exhibited, outside any interpretative context).

Starting with this internal control of the minimum quantity, a series of new possibilities will emerge.

(A) The quantity of letters may increase as a function of quantitative variations of the referent (they use more letters for a big house than for a small house).

(B) At the beginning the intention of the scriptor is of primary importance for the interpretation: Identical texts or very similar ones may serve to represent names of very different objects, as much as very different texts may serve to represent identical names. Gradually two complementary requirements begin to establish: In order to read different things there must exist an objective difference in the writing; and in order to read similar things there must exist an objective similarity (although not identity) in the writing. In other words, the conceptual identity must be reflected in the representation, as much as the conceptual difference. (The primacy of conceptual similarity over sound similarity becomes evident when, for instance, children write with similar letters "gallina" (hen) and "pollitos" (little chickens).)

(C) These intentional variations in the produced representations are limited by three fundamental factors; the requirement of minimum quantity, the requirement of internal variety (to avoid repeating twice--or more than twice--the same letter), and the stock of letters that is at the disposal of the child.

Under the strong constraints of these internal requirements (quantity and variety) and also being limited by their own stock of letters at their disposal, some children make a great exploit: the discovery that variations in the linear order of the same elements produce different totalities. This is nothing less than the beginning of the understanding of the permutations and combinations, in the midst of the pre-operatory period and much before the letters acquire a relationship to sound.

Until here, the writing is interpreted in a global way, in the following sense: to the whole constituted by the series of letters corresponds another whole that is the stated name. However, this whole (totality) has its parts (and children's preference for writing with separate characters (printing-form letters) seems to be justified by the need to be sure of the required minimum quantity. The relationship between the totality and the parts becomes understandable when the quantity of objects is taken as a criterion for the determination of the quantity of letters (six letters for a set of six apples, for instance); nevertheless, what could be the value of each letter when the referent is unique? In attempting to solve this problem, children make a decisive step: To one part of the writing they match one part of the name. The partition of the written name is given by each individual letter. The partition of the name at the oral level is not given: It must be found out. In the search for those parts of the name the child arrives at the syllabic decomposition (Bellefroid and Ferreiro, 1979). Here the syllabic hypothesis emerges for the first time: To each written letter corresponds one syllable of the name that was intended to be written. For the first time there is a clear relationship between the writing and the formal aspects of the speech. This relationship is not yet the conventional relation; it is rather a hypothesis that points in the correct direction, insofar as it links the written representation with formal aspects of the speech.

The syllabic hypothesis suffers multiple ups and downs. It is not constituted straight off, and it has to compete with alternative hypotheses (such as the correspondence with other quantitative aspects of the referent). Initially, it is far from being strict: like the genesis of other term-to-term correspondences (e.g., the number) it starts admitting omissions and repetitions before requiring that each term of one of the series should correspond to one, and only one, of the other series. Thus, at the beginning of this period children can read syllabically, but jump letters or repeat syllables as is needed to reach the end. Because before serving to foresee the construction, to determine in advance the quantity of letters, the syllabic hypothesis serves to justify the writing already made. This syllabic reading adjusts itself initially to the text already produced and considered as a finished product. The written letters are there; they cannot be erased. The child needs to adjust the reading to what is already produced, as if it were produced by someone else.

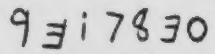
It is only much later, at the peak of syllabic hypothesis, that two new behaviors are exhibited: the possibility of erasing letters if it is found that there are too many when the child proceeds to verifying reading, and the possibility of utilizing the syllabic hypothesis to anticipate the necessary amount of letters before writing them.

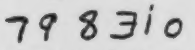
During the period when the syllabic hypothesis is in force, the requirement of minimum amount remains. The coexistence of both requirements (one letter for each syllable and a total not less than two or three letters) is at the source of new conflicts, this time with reference to the writing of monosyllabic words (and sometimes--depending on the minimum amount--also with the bisyllabic words). In fact, in accordance with the syllabic hypothesis, a monosyllabic word should be written with only one letter; however, in accordance with the requirement of minimum amount, only one letter is not enough.

We shall take as an example the evolution during one calendar year of two children, one from the middle class (Mariana) and another from a slum (Javier), who have the advantage of presenting an evolution which is relatively slow, in spite of the fact that both children are clever and rather precocious in their operatory development. (Javier achieves conservation of number at 5;2 and Mariana did the same at 4;6.)

Javier:

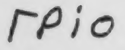
4;7--He utilizes a repertoire which is limited to eight graphisms, where he mixes forms corresponding to letters with forms corresponding to numbers. For each new piece of writing he is careful in changing the order of the graphemes and in maintaining the internal variability. Example:

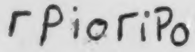

"mandarinas" (tangerines)


"chícharos" (peas)

The amount of graphemes varies between three and nine, and there is no indication of any objective criterion to regulate it.

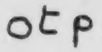
4;10--The amount of graphemes increases if the amount of objects increases, and the conceptual similarity is reflected in the writing. Example:

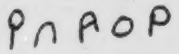

"gato" (cat: one cat in the picture)

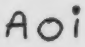

"gatitos" (little cats: three cats in the picture)

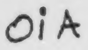
5;0--The foregoing characteristics are maintained.

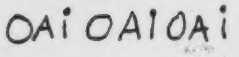
5;5--He utilizes a minimum of three letters; the amount of letters may increase in accordance with the quantitative variations of the referent. Example:


"mosca" (fly)

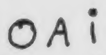

"vaca" (cow)

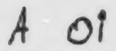

"gato" (cat)


"gatito" (little cat)


"gatitos" (three little cats in the picture; he explains as he is writing: "one little cat" (the first three letters), "the little cats here" (six letters), "another cat" (the three remaining letters).

There is, however, at the same time an attempt of syllabic analysis: when one tries to get him back to his own writing he makes a syllabic reading:


"ga-ti-ta"
(little cat)


"ga-to"
(cat)

5;7--He starts utilizing the syllabic hypothesis in order to foresee the number of letters.

5;10--Systematic utilization of the syllabic hypothesis in order to forecast the amount of letters. He anticipates that "vaca" will take two letters, the first one being "la va." He first puts two dots, to indicate two places, and then he puts letters on them. The syllabic anticipation is rigorous in all words having at least two syllables:

ΛO "vaca" (cow)

OiOE "mariposa" (butterfly)

OFEΛ "elefante" (elephant)

However, for the monosyllabic words he writes also two letters, giving up the syllabic analysis. In order to appreciate the difference, one may compare:

How many do you need to write "mariposa"? "ma-ri-po-sa" ---- four!

How many do you need to write "pan"? (bread) "pan? pann? ---- two!" OΛ "pan"

It should be observed that all this evolution is prior to the attribution of a stable sound-value--whether or not it be conventional--to the letters. We should also take into consideration that Javier, in spite of being the child of illiterate parents, has some school-type information through his elder brothers, that he knows at five years the names of letters and numbers, and that at five and a half he knows the initial of his name, the vowels, and the numbers to 10.

Mariana: (She is the daughter of university professors; she also has a sister who is several years older)

3;6--One letter is enough to write the name of an animal as big as an elephant. However criteria for quantity appear already outlined in some situations.

3;9--The syllabic analysis of words starts as a guideline for the quantity of letters, but she searches for a space coincident with the length of the image, and this spatial consideration takes over the syllabic control. Example:

iE She writes "taza" (cup) saying at the same time "ta-za".

She sees that something is left in order to cover the length of the image and makes the following comment: "No, there is much left out." She adds letters until she reaches the space frontier, at both sides of the initial writing: Oi;ELIr

Afterwards, she attempts without success to read what she wrote: "ta-za"; "taaaza"; "taaazaaa"; etc., without being satisfied.

4;0--She attempts combinations over a limited repertoire of four letters:

AOi3Oi
3OAi
O3Oj

(The picture shows a cock over a fence. First line, "gallo" (cock); second line "palos" (horizontal sticks); third line "palos" (vertical sticks).)

When she reads she adjusts her interpretation to the hypothesis of two letters for each syllable (she even joins both by a small dash in order not to be mixed up). She has no conflict with the reading of "palos"—four letters for two syllables—but she has conflict with the word "gallo" which is converted by her into "gal-lli-na" (hen) in order to have the number of letters coinciding with the number of syllables.

4;3--There is a conflict between the adjustment of the quantity of letters to the quantitative properties of the referent and the quantity of syllables of the names intended to be written. Example: the experimenter writes GALLO and asks if in order to write "gallina" it is necessary to have more letters or fewer letters. Mariana answers that we need fewer letters because "la gallina es más chica" (the hen is smaller), and she writes GALL. To the question of how one could write "pollito" (little chicken), Mariana answers "con las mismas, pero menos" (with the same letters, but fewer) and she writes GAL.

In order to write her own name Mariana asks for four letters (as many as the number of years she has); in order to write her mother's name (that has two syllables) she asks for seven letters, and to write her father's name (also two syllables) she asks "as much as one thousand!"

Identical syllables do not receive the same representation. Example: The experimenter writes PA and says "I wrote pa, how could we write papá?", and Mariana adds PAƧM and reads, in agreement with her own hypothesis of two letters for each syllable, "pa-pá."

4;6--One letter for each syllable, but three as a minimum quantity. Example:

MOU "li-mo-nes" (lemons)

OMR "pi-ñas" (pineapples)

4;8—There are conflicts not yet resolved between several hypotheses: attributing one or two letters to each syllable; adjusting the number of letters to the number of syllables of the name; and adjusting the number of letters to the quantitative properties of the referent.

Example: Mariana knows how to write OSO (bear). She's been asked whether "a little ant will have more or less letters," and Mariana answers a very obvious thing, "Less! Because it is very small! Only two." She writes two letters, but she reads, in syllables, "hor-mi..." and she adds one then she reads "hor-mi-ga" and she adds another one; with the four written letters she reads "hor-mi-gui-ta-" but she gets into conflict when she compares the writings of OSO (bear, three letters) and "hormiguita" (four letters), and she rejects her own writing.

These two evolutions clearly exemplify--in two extreme situations of cultural stimulation--the conflicts of a purely internal nature that emerge spontaneously in the psycogenesis whenever the child tries to understand the writing system. In this domain, like in other domains of cognitive development, to understand implies to assimilate, to transform in order to discover the system of transformations that generate it; it implies to reconstruct, to reinvent.

It seems clear that in order to go from the one-to-one correspondence that we have pointed out (to one syllable, in the order of emission, only one letter, but *any* letter), to a correspondence of another kind, where two similar syllables have a similar representation, it is necessary to have some specific information which can only be provided by the environment. However, this information from the environment enters into the process as a new source of conflicts and not as an immediate solution. When the child attempts to understand the models that are proposed by the environment (and, among them, the child's name in its conventional spelling is the most important of all those models), he or she utilizes his or her own hypotheses. For example, for a child in the period of strict syllabic hypothesis, the total writing of the name is "unreadable." Some children try compromise solutions such as this: reading the first name and the family name in the same piece of writing, so that every letter may be interpreted syllabically.

We have no time to show, within the limits of this paper, what type of information is relevant to each step of this evolution, nor what is the type of information that helps the child to go ahead, and what is the type of information that prevents the child from understanding it further, even if the child complains about doing what the school expects him (her) to do.

I have tried to show how difficult and intricate are the ways to establish a relationship between oral language and written language. Children may remain for long periods with the syllabic hypothesis, in spite of very precise pressures of the milieu. In many cases it is only after having explored several ways out of the conflict unsuccessfully that they discover that one has to abandon the syllabic hypothesis, and replace it by an analysis which goes beyond the syllable. Children will not change their minds overnight because they, as scientists do, cling to their hypothesis and are not ready to drop them on the first obstacle in their application. From now on, children are ready to understand the internal rationality of the system. Only at this point do orthography problems start.

It is important to realize that neither the syllabic hypothesis nor the criterion of minimum quantity can be attributed to a suggestion of the environment (many articles, conjunctions, prepositions, and pronouns are written with one or two letters in Spanish; parents do not teach that every letter stands for a syllable). Those hypotheses are real constructions built up by children when trying to understand the system of rules that generates writings. With the syllabic hypothesis the child begins to explore new possibilities: the relationship between writing and the formal aspects of speech.

Before this period, the amount of letters either remains fixed or varies, but in accordance with a well-defined parameter. It is not the number of syllables in the word that makes the number of letters increase. Neither is it the opposition word-phrase.

Only the quantitative variations of the quantifiable properties of the object may lead to such a variation (larger in size, older in age, increasing number of elements). It is also very important to realize that children don't ask for a qualitative relationship between letters and referents (such as a similarity between the form of the letters and the object's shape). Generally, quantitative relations have a primacy over the qualitative ones.

What will happen then when children are confronted with texts that are produced and read by some other, texts that are supposed to represent a complete sentence, and not a series of names? I have presented elsewhere an answer to this question (Ferreiro, 1978). I am in a position to confirm what I have then said: There is a period during which the child makes a careful distinction between "what is written" and "what could be read." The reading of a complete sentence does not come, for them, from a text where each one of the words that was pronounced has been written in the order of their utterance. The reading of a complete sentence may come from a text where only the names which have been pronounced are represented. And if there are more pieces of the writing than the number of names that have been pronounced, the child imagines that one has added other names which are compatible with the semantic content of the sentence. Javier and Mariana both present this type of behavior when they are faced with a written sentence that has been read before them: Mariana (4;3) in face of the sentence LA SEÑORA COME PASTEL (the lady eats cake) correctly places "señora" and "pastel"; in LA nothing is said because there are not enough letters, and COME, she believes, says "bebe" (baby) which does not prevent her from accepting that the complete text may be read as "la señora come pastel" (the lady eats cake) or as--alternative version--"señora comiendo pastel" (lady eating cake).

Javier (5;2) in DELFINO VENDIÓ TRES GATITOS (Delfino sold three little cats) locates "Delfino" in the place of the first word and each one of the three small cats in question on the three strings of the remaining letters. This does not prevent him from treating them simultaneously as "ga-ti-tos" (each of the three strings of letters has, at the same time, a value as a referent and a value as a syllabic representation of the plural name). This does not prevent him either from correctly repeating the sentence that reporduces what the experimenter has pointed out, as if the agreement in this respect was a total one.

"Delfino vendió tres gatitos" is only an adapted version of sentences which have been very well studied in some other experimental studies by us: In Monterrey we used MAMA COMPRÓ TRES TACOS (Mummy bought three tacos) and in Geneva MAMAN PREPARE TROI GATEAUX (Mummy prepares three cakes) in order to specifically study the effect of a sentence where the number of words that were written (four) coincides with the number of objects referred to (mummy and the three tacos or three cakes). In these studies we were able to show the popularity of the interpretation already mentioned. Additional support to the interpretation that--for children at a certain level of conceptualization--only the names are written was obtained in the following way: When one word is taken out, some children think that the result can be read as "maman prepare deux gateaux" (mummy prepares two cakes); when still another word is taken out the result is "maman prepare un gateau" (mummy prepares one cake).

When we reach this limit, a new question arises: Is it possible to write "maman ne prepare pas des gateaux" (mummy does not prepare cakes)? The possibility of writing the negation brings us to another aspect of the relationship between oral and written language: the relationship between the writing and the truth value which is attributed to the utterance to be represented. Falsehood cannot be written; it does not deserve a written representation. This is not said by slum children; it is said by children of the middle class in Geneva, who are permeated by a literate culture that has been created precisely for them and where what can be imagined has no limits. "Les enfants vont a l'ecole" (children go to school) may be written: This is the opinion of about 90 percent of children between four and six years. On the other hand "la tortue vole" (the turtle flies) cannot be written: This is the opinion of about 70 percent of the same children. Some small children accept writing a falsehood, but we must look carefully into the "how" of the proposed solution. Lisandro, four years old, without knowing "officially" how to write, solves the problems of truth and falsehood linked to representation. We write and read before Lisandro the following sentence: UN PAJARO VUELA (a bird flies). Lisandro says, "I already knew it." The experimenter (being rather astonished, because she knows that Lisandro does not know how to read) asked what it was that he knew. Lisandro explains: "Yes, because birds fly, then a bird flies." A perfect syllogism. It is clear that for Lisandro what we wrote is necessarily true. When we propose to him if it is possible to write "There are no birds" we are probably asking him to write something that is false. Lisandro answers: "The letter that there are no birds I have to make it twisted. There are no birds, because the letters of there are no birds must be twisted. And Lisandro, who only knows how to write a few letters, imposes upon himself--for the sake of internal consistency--the requirement of making letters that are twisted because the other letters do not serve the purpose of representing falsehood.

I have provided some evidence in support of the following assertions:

(1) The relations between oral and written language cannot be reduced to the sound-relationship between phoneme and grapheme. They are far more complex.

(2) Children go a long and complicated way before discovering that the writing surrounding them is alphabetic in nature. They explore other hypotheses, some of them not being adequate for the alphabetical system, although they would be appropriate for other systems of writing.

(3) The writing that preceeds the alphabetical period is far from being unstructured: It provides evidence of children's efforts in the search for an understanding of the laws of the system.

The pedagogic implications cannot be overstated:

--The understanding of the written system seems to imply the construction of a conceptual object (something more than the application of linguistic knowledge or of a metalingnistic reflection to a particular reality). Moreover, reading and writing instruction should take into account the logical problems involved (one-to-one correspondence, relations between the totality and the constituent parts, permutations and combinations, etc.).

--Children have shown to us that they need to reconstruct the written system in order to make it their own. Let us allow them the time and the opportunities for such a tremendous task.

Linguistic Awareness and Classroom Language Instruction

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In this paper I will consider the question of effective language teaching for children. My concern is instruction in the native language. I suggest that an interesting and useful approach is one based on the notion of linguistic awareness, the ability to think and talk *about* language and to view it objectively. With this approach the intention is to have children develop, above and beyond their fluency in spoken language, the ability to introspect about language and to explore its properties through examining their own built-in knowledge about it. The goal is increased linguistic sensitivity and conscious control over language, through children's teaching language not just as a means of expressing thought, but as an object of thought in its own right.

The ability to make judgments about language can be effectively utilized in the classroom through a variety of activities by the latter part of elementary school. Fifth and sixth graders can think about whether word sequences do or do not make up sentences of English, such as *You would never do that* as opposed to *Never you would do that*. Making "grammaticality" judgments for a variety of sentences sharpens one's critical sense of language and helps develop an objective viewpoint.

Specific properties of language can then be taken up. A useful area to focus on, for example, is the relation between meaning and sentence structure. Grammatical features of English that children already "know" in an implicit sense can be brought out and analyzed. Consider the similar sentences:

(1) John is eager to see.
(2) John is easy to see.

Who is doing the seeing in these sentences? In (1), John. In (2), someone else who sees John. Although the sentences look the same in form, they are interpreted differently. Through comparison of sentences such as these, children can get practice in analyzing sentence meaning and thinking about some of the structural properties that relate to meaning differences.

Or take the sentence:

(3) Finding Tom there caused Mary to wonder about Bill. Who is doing the finding? The sentence does not say, but we know that of the three people named, it must be Mary, and not Tom or Bill. Grammatical information that we have available provides this solution without our ever realizing that there was a problem. Children can analyze sentences of this

sort, noting what information is given only implicitly, and stating explicitly what this information must be.

The mental activity involved here is examining one's own knowledge. The children do not need to be told that in the sentence above it is Mary who is doing the finding. This information is already available to them when they understand the sentence. Nor are they aware, as they understand the sentence, that the subject of the verb *find* is not explicitly stated. It is an automatic process, not requiring conscious attention, to recognize that it is Mary who is meant. What I am recommending here is that we ask children to stop and take a look at this automatic process, to notice that information is missing and that they know how to fill it in. This is one of the many components of sentence comprehension, and in this way children can become more sensitive to what it means to understand a sentence.

Or take the ambiguous sentence *They are eating apples.*
meaning (a) Those people are eating apples.
meaning (b) Those apples are for eating, not for cooking.

There is an interesting difference in this sentence for the two meanings, namely the way it divides into phrases:
(a) They (are eating) apples.
(b) They are (eating apples).

Each meaning has its own structure. Sentences like these can be used to illustrate a basic feature of language: the way we understand a sentence is connected to the way we interpret its structure.

Again, as we understand this sentence first one way and then the other, we are not conscious of dividing it into phrases differently for the two meanings. But in fact this is just what we do, in an underlying sense, as we move from one meaning to the other. Examining ambiguous sentences such as these can bring this unconscious activity to the level of awareness. In this way children can become sensitive to the second aspect of sentence comprehension: the direct relation between meaning and the structural properties of a sentence.

The idea for language instruction for children of this sort grew out of a graduate linguistics course that I teach at the Harvard Graduate School of Education, for teachers of reading, language arts, and English. It is a practical course that presents basic notions of linguistics and psycholinguistics related to learning language and to reading, and it includes an introduction to transformational grammar. A repeated reaction of the students in this course has been that it presents a very different view of language from the one that was presented to them in school, if indeed they ever studied grammar at all. Previously they had always found grammar lessons beside the point with respect to the reality of what language is like. The approach to grammar in the graduate course was much closer to linguistic reality. They felt, therefore, that a modified form of it would be meaningful and useful to their own pupils. "Why can't there be language materials for elementary school students," they asked, "which reflect the same point of view?"

Accordingly, a group of my students and I proceeded to develop "linguistic" materials and games for pupils based on sections of the course materials. We tried them out on small groups of fourth- to sixth-graders for a period of several months. To our satisfaction, the pupils found the work interesting and enjoyed it. They tackled it with gusto, apparently because it related to something real in their sense of the language, rather than being abstract, "dry" grammar. Some of them described the work as "cool."

Let me stress that this language work does not teach "grammar" in the traditional sense. Nor does it teach linguistics. It does not use linguistic terminology, teach rules, or even mention parts of speech. It deals with why sentences mean what they do, drawing on students' implicit knowledge of their language and making that knowledge explicit. Through guided linguistic consciousness-raising sessions pupils develop an ease in making judgments about language. They study sentence acceptability, paraphrase, ambiguity, phrase structure of sentences, and the interrelationship of structure and meaning. Introspection about one's own language is the primary tool, without the use of technical terms or direct grammar teaching.

One sixth-grader, when asked to compare these materials with his regular language arts text, said that he found them very different. "In our book," he explained, "we learn *new* things like nouns and verbs." "Where do you feel you learned more?" We asked. "Here," he replied. "Why?" "Because all this stuff makes you *think*!"

It's true that the students have to think to work through language materials of this sort. They have to look at language in a new way. We found that the materials were better suited to fifth- and sixth-graders than to fourth graders because many of the younger pupils had trouble looking at language objectively. It is hard for many fourth graders to think about a sentence directly, in terms of its properties, independent of the real-life situations to which it refers. This is an ability which increases with maturity and accompanies more advanced stages of cognitive development. By fifth grade most students are at the point where they can readily stand back and reflect on language. The materials do require this kind of objectivity.

Again, treating language objectively does not have to mean memorizing parts of speech and rules of grammar. What I mean by it is exploring one's own knowledge of the language. I mean learning the kinds of things about language that one can learn through introspection, by considering what we know about what sentences mean. I mean to start with what one already knows implicitly about language, and to make some of this knowledge explicit.

Let me expand on the notion of ambiguity introduced earlier to illustrate this point. Ambiguity offers wonderful possibilities for working on how sentences come to mean what they do, and a great deal can be learned by figuring out just where the two different meanings come from. There are several different ways in which a sentence can be ambiguous. For example,

He waited by the bank.

can mean that he waited by the edge of the river, or he waited near the place where he deposited his money. This is a simple example of *multiple word meaning*. It is simply that the word "bank" has two (or even more) meanings. Another kind of ambiguity is *structural*. For example,

He told the girl that John liked stories.

means either "He told stories to the girl that John liked" or "He informed the girl of the fact that John liked stories." Here the difference resides in the way the sentence is divided into phrases:

He told (the girl that John liked) stories.
He told (the girl) (that John liked stories).

A sentence composed of the same words, in the same order and with the same meanings, has two different meanings because of its structural properties. Here the point is brought home that a sentence is not just a sequence or words coming one after the other as if on a list. It has structure. Its words are grouped into phrases, and it is the way we interpret these groupings that determines how we assign it a meaning.

Of course we do not consciously make decisions about how a sentence is divided into phrases in order to understand it. Such decisions take place on an unconscious level. They are clearly implicit, and not explicit. But they do take place, and they account for the fact that we can interpret a sentence two different ways. What we sense is that the sentence has two meanings, but what this sense is based on is the implicit recognition of two different phrase structures. The difference in phrase structure is reflected in the intonation with which we pronounce the sentence, where we place the pauses and which words we emphasize. It is part and parcel of understanding, and in oral reading is what allows us to read "with expression."

The notion of phrasing is important, and can be approached in ways that will help children tie their understanding of sentences to these structural properties in an intuitively effective way. A good way to introduce the idea of word groupings is to have the pupils work on solving the following puzzle. It's a poem that appears not to make sense. But by figuring out where the sentences actually begin and end, you can make it make sense. There is no trick. The poem makes perfect sense if you just put the breaks in the right place.

Every lady in this land
Has twenty nails upon each hand

Five and twenty on hands and feet
All this is true without deceit.

The solution:

Every lady in this land
Has twenty nails; upon each hand

Five, and twenty on hands and feet.
All this is true without deceit.

Once pupils get the point, they can move on to ambiguity and solve sentences such as:

It was a little girls' school.

It was a little (girls' school).	(a small school for girls)
It was a (little girls') school.	(a school for little girls)

Mother has scrambled eggs for breakfast.

Mother (has scrambled) eggs for breakfast.	(Mother scrambled some eggs.)
Mother has (scrambled eggs) for breakfast.	(Mother eats scrambled eggs.)

They are biting dogs.

They are (biting dogs). (They are the kind of dogs that bite.)
They (are biting) dogs. (Some people are biting the dogs.)

They are always giving me books on airplanes.

They are always giving me (books on airplanes). (books about airplanes)
They are always giving me (books) (on airplanes). (on airplanes, they give me books)

This work gives good practice in coming to feel the connection between meaning and structure.

There is a third kind of ambiguity that is not connected to different word groupings but is a form of structural ambiguity, nevertheless. Here there are no differences in word meaning or in phrasing, but still two meanings exist. Examples are sentences such as the following:

The chicken is ready to eat.

The chicken is ready to peck its corn.
The chicken is ready for us to eat.

The shooting of the hunters was terrible.

It is terrible that the hunters were shooting.
It is terrible that someone shot the hunters.

Visiting relatives can be boring.

Relatives who visit us can be boring.
It can be boring for us to visit relatives.

In these sentences the two meanings are derived only from differences in the *grammatical relationships among the words*. In the first, it is a question of whether the *chicken eats* or *we eat the chicken*. In the second, whether the *hunters shoot*, or someone *shoots the hunters*. And in the third, whether the *relatives* do the *visiting*, or someone *visits them*.

I suggest that it is useful for children to see the connection between their understanding of sentences and linguistic properties such as these. Working with ambiguity in this way, finding the two meanings for sentences and relating them to structural differences or word meaning differences, is a good way to get practice in analyzing sentence meaning and the relation between meaning and form. Pupils can come to appreciate the kinds of decisions they are called upon to make in semantics and syntax as they understand language.

Another interesting way to get practice in dealing with what sentences mean is to compare sentences to see if they are synonymous. Do two sentences mean the same thing or don't they? Is sentence (b) a paraphrase of sentence (a)? Part of knowing a language is the ability to make decisions such as these about sentences. For example, take the sentence

John is easy to please.

We recognize that *It is easy to please John* is an acceptable paraphrase. However, consider the similar sentence

John is eager to please.

We find that *It is eager to please John* is not a paraphrase at all. In spite of the superficial similarity of the two sentences

John is easy to please.
John is eager to please.

they are really quite different in structure and, therefore, cannot be paraphrased in the same way. The difference lies, of course, in the fact, noted earlier, that in the first sentence someone else is pleasing John, and in the second, John is doing the pleasing. The grammatical relations among the words in these two sentences are very different even though the order in which the words occur is the same. Again, these are facts about the language that children "recognize" but that they are not ordinarily aware of. Considerations of synonymy and paraphrase can help bring this kind of knowledge to the level of awareness and make it explicit. It is another way to analyze sentence comprehension.

Still another way to work on sentence meaning and structure is to fill in items that are missing from sentences. Take the sentences

(1) I blamed John for monopolizing the conversation.
(2) I apologized to John for monopolizing the conversation.

These sentences do not say who was monopolizing the conversation. The verb *monopolizing* lacks a subject. We do, however, know who is meant. In (1) it was *John* who monopolized the conversation, and in (2) it was *I* who did. *Monopolizing* has an implicit subject that we recognize as different in the two cases even though the sentences have the same form.

Children's knowledge of the language enables them to retrieve this missing subject differently in sentences that look alike on the surface. It is interesting for them to notice this somewhat unusual feature of sentence structure, and to recognize that understanding the sentence requires them to provide, from background knowledge, crucial information that does not appear anywhere in the sentence.

This is a sample of the kind of language work that I recommend for children. They think about sentences, their properties, what they mean, and what a speaker must know to use and understand a language. Basically they are taking a look at the workings of the grammar of English that they carry around in their heads.

Benefit to Students

The point of the language work discussed here is to increase students' linguistic sensitivity and sophistication, through making them aware of some of the grammatical properties of language. Children become better able to talk *about* language, linguistic structure, and meaning. This increased linguistic awareness does, we believe, give them more control over language, and can be expected to have an effect on their handling of the *written* language, both in reading and in writing.

Effective teaching in reading comprehension and in writing facility is not solely, or even perhaps primarily, a matter of teaching children additional facts about the language. They are already competent users of the spoken language. They have a fluent command of English and a built-in grammar that enables them to speak and to comprehend spoken English with no difficulty. Their store of linguistic knowledge is actually quite impressive.

This is not to say that fifth and sixth graders have no need to increase their knowledge of the language. Certainly they do. As they progress through the grades vocabulary will grow, new constructions will be added, and the ability to deal with longer and more complex sentences will gradually increase.

But the concern here is not students' difficulties in reading or writing English that is beyond their competence, that is too hard for them. The concern is the difficulty that many pupils seem to have in handling written language at a level that is commensurate with their oral language facility and knowledge. Quite often, problems that arise in dealing with the written language stem not so much from deficient knowledge of English as from an inability to exploit what knowledge they already have when it comes to interpreting English from its written form rather than its spoken form. And still more difficult for many pupils is writing, which requires more attention to careful construction of sentences, as well as the ability to read them back, once written, to check for accuracy, grammatical form, and meaning.

This language work puts students better in touch with what they know. The activities relate to language comprehension in a serious way. The analyses have to do with the way sentences are constructed and why they mean what they do. By being explicit about what is a sentence and what is not, about how the structure of a sentence is related to its meaning, about how the form of a sentence does or does not reveal its structure explicitly, students are dealing directly with sentence interpretation. They are getting practice in manipulating those components of sentences which are directly tied to comprehension. They become more sensitive to linguistic structure, and more facile in dealing with linguistic complexity. These abilities are at the heart of comprehension, both of the spoken language and of written material.

And the students spend a great deal of time in sentence construction, considerations of what can come next as a sentence is composed, and careful reading back of the sentences they produce. Activities of this sort are included in the "grammaticality" section. Putting words together carefully and purposefully helps with writing facility, and they get practice in judging their own productions for grammatical accuracy. Part of students' failure to write grammatically in their schoolwork is a neglect of critically checking over what they have written. They are so close to what they've just put down on paper that they can't be objective and don't see the errors. This is to some extent everyone's proofreading problem. The activities here stress both care in sentence construction and objectivity in rereading. These are crucial parts of writing grammatically.

Thus the kind of practice that these language activities provide in constructing sentences and in considering and comparing sentence meanings should have a positive effect on reading comprehension, and writing facility as well. Students gain added facility in sentence composition, sensitivity to grammatical structure, and awareness of some of the components of meaning. All of these are important aspects of dealing effectively with language in its written form.

En route to this conference, my seat-mate on the airplane was a third grade boy who was willing to answer my questions about sentences. He turned out to be quite advanced in his ability to think about languages and give judgements about sentences. He obviously had a high degree of linguistic awareness. What interested him the most were the sentence ambiguities. He successfully resolved the ambiguities in *The chicken is ready to eat* (chicken's gonna eat; you're gonna eat the chicken), *It's too hot to eat* (the weather; the hot dog's too hot), *Flying planes can be dangerous* (when you fly a plane it can crash; when you're on the ground and a plane comes by, flying, if you're on the roof it could blow you off), *They are always giving me books on airplanes* (flight attendants, people on airplanes give books; their parents always give them books and the subject is airplanes), and *The shooting of the hunters was terrible* (hunters shooting at the animals; kidnappers shot the hunters and it was terrible that they got shot). But he missed *John is too far away to see,* giving only the meaning *You can't see John.* When I told him the other meaning (John can't see), he rapped himself on the head with his fist and commented with a laugh, "Boy, you really gotta use your mind!"

This is reminiscent of our sixth grader's reaction mentioned earlier, "All this stuff makes you think!" It is this kind of thought and attention, I suggest, that will give children a better sense of their language. In the long run it should help them develop better control over its various uses, and contribute to their ability to manipulate it to their own ends.

II. Child Language in Schools

Language- and Thinking-Focused Curriculum Development

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This discussion is based on the proposition that education's two oldest basics, language and thinking, can be used as focusing themes for modern curriculum development. First the rationale for such curriculum will be explored. Then a specific curriculum will be developed. In the Progressive Education era, Dewey's idea of intellectualized "experience" became the organizing concept for curriculum-making that built units around the "project method." Later the conceptual-theme and disciplinary process advocated by Bruner were the focusing bases for curriculum construction. Under each of these influences was a blossoming of curriculum-building that gave continuity, substance, purpose, and energy to the planning process. In recent years the curriculum has become fractionated by the many diverse demands made upon it from pressure groups of many persuasions. At the same time, curriculum has been straightjacketed by a "Back to the Basics" movement that advocates prescribed mastery systems in the "skills" of reading and mathematics. This latter trend has caused the curriculum to become disembodied from the substance of language and thought--the ideas that are developed through an interplay of "experience" with knowledge.

The development of a language- and thinking-focused curriculum brings back continuity, substance, and drive to curriculum-making by putting to work new insights that studies of language- and thinking-development have brought to the educational process.

Rationale for a Language- and Thinking-Based Curriculum

Language and thinking develop hand in hand as children confront new problematic situations. Children respond to them, try to figure out what is happening, and finally come to terms with them by modifying and incorporating the resultant impressions, attitudes, and ideas into their own schemes of things, or they respond to the situations by rejecting them or starting a whole new line of thought and language toward new personal constructs. Even before children begin to speak, they are responding to speech in situations involving parents and other speakers as well as picking up impressions through all their senses. Modern theory states that although both language and thought seem to arise from children's potential inner inherited structures, they develop and are nurtured through the childs' exploitation of situations that require thought and language. The home, neighborhood, and school environment must be rich in opportunities to meet new situations requiring new thought and language. When a child is deprived of such situations, the development of these two essentials for effectively coping with life is retarded. The devastating impact of such deprivation is dramatically illustrated in Herzog's illuminating film, *Land of Silence and Darkness* (1971), when a child born deaf, dumb, and blind has been incarcerated in one prison-like room for twenty-one years.

In the natural, everday, non-school world the child may encounter many happenings which do not require much thought or language beyond the phatic--the habitual occurrences of the human biological and social routines such as eating, sleeping, and saying "how de-do." But thought-challenging situations are the ones that matter in an educational sense. Preschoolers can be confronted on the playground with a seesaw that will not balance or by a squirrel poking acorns in his mouth and running away with them. Children can then struggle with the language of explanations, or such explanations can be expanded with the assistance of caring adults and/or playmates.

In the adult world ... language is extended, enriched, restructured, and even self-corrected as people move into new situations creating confrontations with new problems that must be solved or with new ideas that must be met, understood, and used. The everyday and present level of language production is challenged--when it does not suffice, new language structures are sought. When people are placed in a new area of life space, they are likely to find that their language is inadequate and a striving for expanded expression becomes an educating force. I observed a man with a conventional workaday language break out excitedly into an array of piecemeal political and socioeconomic concepts while striving to explain being involved in an employment survival situation that required getting into the political arena. Dangling participles, inaccurate references, and partially conceived statements be "damned" as an excited attempt was made to meet this new situation. A new thought in an invented word came to him as he said, "I'm becoming *politicated*." Eventually his language will become refined as his thoughts become clarified through interaction with others, especially if at least one of the participants in the speech situation has appropriate language structures or if the interaction takes place with someone knowledgeable in the field. Raw experience alone is not enough for positive learning. Intellectual reflection and/or dialogue through speech or print with knowledgeable persons, as was suggested by Vygotsky (1962), is needed.

Some educators have pointed to the results from studies of children's thinking by Piaget in the last several decades as one obstacle to the teaching of thinking and language together in the early years (1-7). Although Piaget, when asked about teaching, always replied that an open-ended, self-inquiring approach was best, some appliers of his findings have stressed the limitations in thinking at different stages of children's development of thought. Some of these notions have even been structured into skill-type exercises to train the child in the processes of a particular stage or in getting ready to move into the next one. With these sorts of exercises available to teachers of the young, and with the complete absorption of many educators today with accountability schemes for teaching the "academic skills" (thinking not being considered one of them), the opportunities for American young children to be involved in learning situations and environments that stimulate thought and language are limited in many clawsrooms.

Thanks to a persistent and searching scholar of children's thinking, Margaret Donaldson, such narrow applications of Piaget's work have been questioned. In *Children's Minds*, Donaldson (1978) summarizes recent research in both language and thinking which shows that young children can build thought and language structures of some sophistication, provided they are developed in life situations that are within the experience of the child. Evidently many children can succeed where Piaget's subjects failed when tasks requiring a "decentering" or "conservation" process, for example, are set in familiar situations rather than in the abstract, and if familiar language is used that clearly tells the children what is expected. This is not to deny the overall significance of Piaget's discoveries and analysis. Thinking, like language, is a developmental process. Young children are not capable of complex, abstract, and objective thinking in the early years but can begin to make sense of the world around them by observing, listening, and making inferences, testing them out and getting hold of the language they need. Indeed it seems as though children can find the language structures they need if the adults set up familiar situations where the language must be used. This process happens naturally for the preschooler in the home setting where all objects and people are familiar.

When the child goes off to school, many of these familiarities are not to be found. Many abstractions take their place in the form of numbers and alphabets, for example; many situations are developed by the teacher out of vicarious stories and descriptions. It would seem that teachers and the organizers of schools need to bring life into the school or take the children out to participate in life while they learn to think, talk, and write about significant life situations that are relevant to them.

Social studies, sciences, and the humanities can provide the contexts for situations in which language-thought structures can be expanded and deepened.

Earlier Life Situation Curricula

This plea for real life learning situations has had a familiar ring since the days of progressivism with its "life experience" oriented curriculum. Curriculum developers such as William Heard Kilpatrick, with his "project method," and Florence Stratemeyer stressed the need for intellectualizing experience by using "persistent life situations" as the thematic spiraling core of curriculum. But the intellectual part of the progressive notion has gotten lost in the popularized slogan of the period, "learn by doing." Once again, the professional world is coming around to the notion of building thought and language situations with which they can confront their learners, choosing those which will be more relevant to the youngsters and most likely to produce the thought and language structures desired.

The "Conceptual Theme" curricula developed in the sciences and social sciences during the 60s are, in a way, good examples of what is needed, especially with their emphasis on the inquiry process. These curricula should be dusted off and recreated in view of the 80s life situations but with a difference. Simply presenting learners with life situations or experiences and having a talk will not be enough to do the job. Teachers will need to focus on the thinking and language structures they wish their learners to develop and extend. These curricula can only be recreated, however, in relation to changing times and attitudes or of local interests and concerns. Continual curriculum recreation involving teachers would be a functional way to establish a continuous Hawthorne effect in school programs.

Present Day Need for a General Curriculum Core

The crying need for a general vertical curriculum core from K-14 stems from the present day state of chaos and confusion on the curriculum scene. Pressure groups, self-styled specialists of every sort, have torn the curriculum to shreds in the last decade by demanding, often through political and quasi-political means, that their special desires be mandated as part of the curriculum. The teaching profession has, in most instances, stood by and succumbed to these mandates when they know in their hearts that a patchwork and hodgepodge of unrelated and hastily contrived bits of subject matter with piecemeal and isolated skills exercises does not add up to an educational program.

Each institution's faculty, administration, and responsible community boards need to call a halt to this sudden infusion and injection of undigested matter into the curriculum and begin to assess their curriculum situation with a view to reformulating a curriculum in the next decades. Such a curriculum must have some generality for educating citizens of the 80s and 90s to participate in the ever-evolving democratic social, political, and economic experiment that *is* the USA. It must have some continuity and sequence to it, as well as branching avenues for the extension and expansion of special interests.

The faculty of Harvard College has decided to reassess its curriculum situation and propose new organizing themes for a general core curriculum at the collegiate level.[1] The faculty committee recommended that the general core include language communication study and that the content of the general education courses be interdisciplinary and relevant to the life problems of today and to projections of future trends.

In Great Britain, the Department of Education and Science sponsored an "11-16 Curriculum Project" which stresses innovative secondary school curricula that encourage movement toward a common curriculum. In a project paper cabled *Language in the Whole Curriculum: English and a Linguistic Education 11-16* (unpublished mimeo 1977), the authors propose a "linguistic education" for which much of the responsibility lies in the "school as a community" (one might add *speech* community) and they point out that language experiences in school are all too frequently limited to superficial uses of language such as direct and simple questions and answers as the deeper and more significant language becomes alien to pupils. The authors see school language as a vital core to the whole education process with the teacher in the pivotal role of modeling (p.30).

In schooling for 5-12 year olds, a distress signal has been raised with regard to the teaching of reading. Due to the preoccupation in recent years with meeting demands for reading skills achievement, comprehension learning has been neglected. Teachers have become increasingly interested in such reading activity as having readers predict what is to happen in stories rather than answering questions afterwards. They are seeing once again the value of integrated studies around central themes that encourage thought and language development. They are using new questioning strategies to lift the levels of classroom thinking and language use.

In a set of video tapes Moira McKenzie stresses the need for teachers to integrate conceptualizing, analyzing, and generalizing with reading, speaking, and writing.[2] Middle grade children are shown working individually and sometimes in pairs on science, social studies, and humanities/self-selected topics under the teacher's interactive guidance.

Elliot Eisner in his provocative book on curriculum, *The Educational Imagination* (1979), makes a persuasive plea to release teachers from the confines of prescribed mastery curriculum systems and permit them to use their educational imagination in developing their own teaching ideas that involve learners in developing *their* own ideas and expressing them.

A literate citizen who has little ability for dealing with the analysis of ideas is a danger to a democratic society. A skills curriculum disembodied of situational activities that require thought and language of a substantive and analytical nature is not only a danger to the survival of schooling for democracy but it also excludes students from solving real-life problems.

This presentation will now focus on the specifics of thought and language curriculum.

A Thought- and Language-Centered Curriculum

A possible approach to integrating thought and language development with life situations into a cirriculum would be to start with the thought and language structures that should be developed and suggest the kinds of life situations which rely on knowledge from the arts, science, math, or social studies that should become the matrix or milieu for their development.

CURRICULUM I - *An English Language and Thinking Core (K-12)* (Core)

Such a core program would focus on thinking and language development that involves the learner in vertical cycles of the thinking processes at advancing levels of language complexity and sophistication in tune with what can be expected of growing young people. These processes would be expressed horizontally through intensive practice in talking, reading, and writing that emerges from real and simulated life situations planned, structured, and managed by the teacher and learners.

CURRICULUM II - *A planned Interrelating of Language and Thinking with Content Areas Up and Down and Across the School Curriculum* (Complementary)

A complementary effort would integrate language and thinking development into the social studies and humanities curricula and could be organized to dovetail at various junctions with the core. Teachers would use the same core language process but in the contexts of their fields.

At the elementary school level these two curricula would be taught by one teacher in self-contained classrooms, or by a team in a school using family grouping. At the secondary level the English Department would be responsible for the core while serving in a liaison capacity with subject area departments who would develop Curriculum II.

An English-Language and Thinking Core Proposal -- Curriculum 1

The author was involved with a team of teachers, curriculum professors, and editors that sketched out a *Language-Thought Core Curriculum*[3] for the elementary grades which proposed to teach language and thought structuring together as a core curriculum, combining the study of two of the most basic skills and using everyday child-life situations or simulations of them as the matrix in which to study them. This curriculum sketch took the basic English grammatical structures and tied them to the thought processes behind them. It introduced them at roughly the age-grade level that seemed most apprpriate, given Piagetian notions and studies of child language acquisition. It also reinforced each of these integrated processes at each grade level in a more sophisticated manner in different situational contexts deemed appropriate to the modern life experiences of young people at that level of maturation. A series of key questions about life that demand thought and language expression became the framework for this curriculum proposal.

Some Examples

The *noun phrase* structure including modifying adjectives is one language means for expressing thoughts that come from experiences of trying to organize the world about oneself. Items in the environment require names so that they can be designated, described, and interrelated. Human beings seem to need to order their universe, get things in place and categorized so that they can be remembered. Some are ordinary objects (common nouns), while others are special because of personalized naming by individuals or groups (proper nouns). When the name requires a great deal of use or when personal intimacy is required, a generalized short term is needed (the pronoun). When the object needs to be defined more precisely, more specifically, or more aesthetically, the adjective is needed. Focusing questions at a primary level might be *What is it? What does it look like?* At a middle level they might be *What other ways can it be named?* (synonyms). *Is it always the same wherever you go?* (dialects and other languages). *What was it called earlier?* (language history, old fashioned literary references). *Are you sure of what it is?* (scientific observation and recording).

Teacher teams, with the aid of consultants, could plan the local contextual situation in which these questions would be amplified and answered. They could also devise the instructional strategies with the aid of a guide of suggested possibilities. Here are some examples.

The teacher brings in an object that is unknown to the children but offers some clues in its design and appearance that relate to familiarities of the youngsters. A kitchen utensil for steaming vegetables or a pan for coddling a whole fish are examples that have been successfully used by teachers. The learners are asked to write down nouns and adjectives that describe it as they are permitted to view the object up closely, to touch it and smell it, taste it if that can be hygenically done, as well as look at it from all angles. Then the descriptions are shared and, only after that, is the question asked, "What is it?" A modified form of "Twenty Questions" can serve well at this point until the clues are all discovered and the object is named. The children can bring in their own mystery objects, compose a brief protocol of questions to ask about their objects, submit a full description of it including all the clues and their objects, and then try it out on their classmates. This language-thinking activity can be transferred into social studies by repeating it with historical artifacts found around the house or submitted by a grandparent. This activity can be summarized in a small museum display of unusual artifacts with descriptive naming cards prepared for each item but hidden from the viewers until students have played the guessing game of "What is it, and why?"

In science the categorization and classification of objects in the environment is an essential process. What is alike about these, what is different? This thinking process requires clear referential language of description. Collecting many different kinds of leaves in the fall and then making careful descriptions of each one, particularly their structures, is a corollary activity in science to the core programs and extends the thinking and language of naming to categorizing and labeling.

In the humanities the use of *like* is an important attribute to the description process. It permits people to come to terms with new objects and experiences by relating them to familiar ones--the simile. Describing the courage and concentration of players in a cup-winning football match could have the same characteristics described in a Homeric battle simile from the *Iliad*.

The metaphorical mode of thinking is rooted in the humanities, but it is used extensively in the sciences and social sciences. As investigators try to envision a new concept, they must compare it to something that exists. Study of the glacial period grew out of the metaphor of thinking that the world is like a single mountain with glaciers on it.

Environmental study could be the theme for practicing the metaphorical mode in life situations. Young children can deal with some part of the school grounds that has become run down. They can imagine how they would like it to look and contrast it with better-looking parts of the community they know. When they have taken some action, such as planting some flowers, they can describe the new look. Older children may want to clean up an empty lot or garbage-cluttered riverbank and think of their project as a means of restoring nature. Metaphorical thinking and language invite comparisons and use them to express new ideas in relation to old ones.

What's the Problem? Conditional Thinking and Language

The thinking and language structures become complex when problem solving becomes a thematic focus: What's the question? What's the evidence? What happens? What made it happen? What if there were other circumstances? What can you surmise? Was it worth it? All these questions take learners into the higher levels of thinking and the more complex language structures that go with them: differentiating, analyzing, inferring, hypothesizing, theorizing, assessing, valuing, etc.

Take conditional thinking as an example. One way into this sort of language and thinking is the mystery story, trying to figure out what happened from clues in the environment and situation. Young ones can play the mystery package game or hide items about the room and leave clues or bring forward clues. Older children can deal with mystery stories, reading and writing them. Or as one teacher did, bring in some artifacts from a camping trip and set up an area with them in such a way so that these are clues as to who the people were, who were camping, where they came from and where they were going.

Some Sample Frameworks[4]

Each of the major functions of language could be taught through a recognition process. Most learners coming to school use many of the functions in order to help them refine, extend, and enhance usage. The core language-thought curriculum can be constructed around key questions requiring the use of certain language-thought structures. The following are sample frameworks which can be developed at both simpler and more sophisticated levels.

It Happened! When? Where? How?

Pursues clues in story to solve problem presented by mystery story.
Interviews characters in mystery situation.
Role plays characters in mystery, creating appropriate dialogue.
Creates dialogue to accompany events not in story.
Identifies and uses adverbials that answer the questions, "when?" "where?" and "how?"
Recognizes that stories are generally told as having taken place in the past.
Compares characteristics of a nonfiction article with a fictional adventure story about the same place.
Recognizes that words have different and varied origins, and that many have come into the language at specific times.

Why Is It?

Analyzes data to determine which factors are pertinent and organizes the data to form and support a conclusion.
Identifies unavailable data.
Uses conditional syntactic structures plus structures involving such verbs as *seem, appear, look* to speculate about causes of observed effects.
Uses "because" clauses to identify causative factors.
Answers "why" questions to explain observed phenomena in science experiments.
Recognizes that questions in print end with question marks.
Writes a business letter of inquiry asking the basic question *why*.
Recognizes and uses a variety of test-taking techniques tailored to the types of questions found on different assessment instruments.

How Do We Say It?

Expresses feelings generated by a poem, songs, or ballads.
Identifies some of the visual and linguistic stimuli that produce specific feelings.
"Paints" a picture using words.
Recognizes the written language conventions related to dialogue (commas, quotation marks, etc.) and different patterns of dialogue indicator phrases.
Identifies forms of language represented by different cartoon dialogue situations--private, casual, social.
Analyzes the content of advertisements, political speeches.
Describes differences between a scientific report and science fiction.

What's So Funny?

Identifies language incongruities exemplified by puns and humorous ambiguities.
Recognizes that humor comes in many forms.
Identifies the rhythmic elements in poetry.
Recognizes that one way to generate humor is to exaggerate a familiar, everyday situation.
Recognizes that humor, at the expense of others, deserves to be avoided, and that name-calling and stereotyping are harmful.
Describes social situations that are humorous and analyzes why they are funny.

Method

Method should fit the objectives by using teaching-learning processes that support and amplify the objectives. The main objectives of An English-Language and Thinking Core are:

> Bringing learners into an awareness of the language structures they use by discovering the regular structure in their own language or as they use it through a process of recognition.
>
> Encouraging learners to expand their language repertoire including the use of more sophisticated structures through a process of generative thinking and expressing the ideas generated in speech, writing, and other symbolic representational systems.

An open inquiry method is required to stimulate productive thinking, speaking, and writing as well as reflective listening. The method should also reflect the way learners approach novel situations and come to terms with them. The following construction has proven useful to curriculum workers as a way to help teachers remember the phases (perceiving, ideating, and presenting) students go through in coming to know about some happening or event. These, in turn, suggest teaching strategies (confronting, dialoguing, rehearsing) appropriate to each phase for encouraging the expansion of language-thought structure (Smith, Goodman, Meredith, 1976).

Phases of the Symbolic Transformation of Experience into Knowledge	*Pedagogical Strategies for Meeting These Phases and Extending Them*
Perceiving Making initial impressions and reactions; using nominative and descriptive language.	*Confronting* Bring into awareness, labeling describing, comparing perceptions and impressions with colleagues and teachers; using open and direct questions, working with nouns and descriptor phrases.
Ideating Categorizing, conceptualizing, hypothesizing, analyzing and generalizing; using clauses of relation, cause, and condition.	*Dialoguing* Problem finding, questioning, informing, experimenting; using open inquiry questions, working with compound and complex sentence formation connectors and indicators of time, place, cause, and condition.
Presenting Organizing and summarizing ideas and feelings in symbolic forms for presentation to self and others; using language structures and art structures or forms to express ideas and feelings.	*Rehearsing* Problem solving and reporting, making applications of ideas in new contexts, arguing and debating, performing, using outlining, paragraphing, and challenging questions.

Below are two sample lessons for pupils around the themes of creating language comparisons, similes, and metaphors, and language for experiments followed by a sample teacher's guide.

Language-Thought for Comparing

What Is It Like?

Perceiving:

Cartoon pictures of things: "hot as blazes," "cold as ice," "cross as a bear," "snug as a bug in a rug," etc. The pictures should be "funny" (incongruous) such as a hot day on a beach with flames coming off the palm trees and other objects. Underneath the cartoon place the statement with a blank for the picture word phrase:

hot as ______________________ cold as ______________________

cross as a __________________ snug as a ____________________

You can make your language work for you in amazing ways. Did you know you can make a picture in language? These cartoons show some everyday use of language pictures. Together decide what words you would put in each blank to create the language picture. Can you think of some other picture words you have heard? What do you think "It's raining cats and dogs" means? Make up some of your own:

The day is bright as ______________________________

The mud is as gushy as ______________________________

What Are Language Pictures?

Ideathing:

Poets like to make pictures in language to surprise us and please us with ideas that we might have had about things around us. We know that wind is moving air but it is hard to see "wind" and we need word pictures to remind us it is there.

Brooms

On stormy days
When the wind is high
Tall trees are brooms
Sweeping the sky.
They swish their branches
In buckets of rain,
And swash and sweep it
Blue again.

--Dorothy Aldis

Wind Song

When the wind blows
the quiet things speak.
Some whisper, some clang,
some creak.

Grasses swish
treetops sign
flags slap
and snap at the sky.
Wires on poles
whistle and hum.
Ashcans roll.
Windows drum.

When the wind goes--
suddenly
then,
the quiet things
are quiet again.

--Lillian Moore

What Language Pictures Can You Think Up?

Ideating Extended:

After you have read the poems, go back and pick out the little pictures you find in them that tell about the wind. Read them aloud to the group or to a person sitting near you.

On a piece of paper write down one of the pictures you like the best and draw a picture of how it might look. Write down two or three other pictures that you have seen when the wind blows.

Helpers: The wind is as strong as ______________________________.

The wind is as loud as ______________________________.

The wind makes ______________________________________.

Making Up Language Pictures

Presenting:

One way to make your language work for you in making word pictures is to use the words "is like" and see what happens. Try it with sunshine: Sunshine is like ______________________. Tell others what you think it is like. List all the ideas your class thinks up. You will have something like a poem.

Choose one or more of the following:

1. Imagine that it is raining or snowing and that you are by yourself looking out the window at it. Write down in a list as many thoughts as you can of what it is like. You can begin by writing, "The rain or snow I am watching is like ________ ____."

2. Here is a well-known poem about "fog."

    The fog comes
    on little catfeet.
    It sits looking
    over harbor and city
    on silent haunches
    and then moves on.

    --Carl Sandburg

    Make up your ideas of what fog is like when you have seen it. Because people cannot see very well in the fog, imagine some strange happenings that might occur in the fog. Make a little storybook about "fog" that others can read.

3. If you live in the city, write down little pictures you remember when there is a windy rainstorm as you look out your window.

Language-Thought for Experimenting

What Is Happening?

Perceiving:

Illustrations of children sitting under trees from which different size fruit/nuts/seeds drop on their heads (funny slapstick cartoons would be possible here); an apple tree, a coconut tree, a pecan nut tree, a pawpaw tree, a maple tree with a seed pod floating down. The falling objects must all be hitting or about to hit the child's head without the child's knowledge, or the child sees it and is moving away.

1. Ask questions about the falling objects:
   What questions do you have about these falling objects as to:
   the reasons they fall, whether one calls faster than another,
   why or why not?

Ideating:

Find out what questions your classmates have. Decide on two or three questions that you want to investigate.

2. Make some good guesses about what might be happening when objects fall.
   What are your guesses about falling objects that are smaller than others, lighter in weight than others, or shaped differently than others?
   Write down the good guesses to your way of thinking with a reason why you think it would happen.

3. Plan some ways to see if your guess is a good one.
   In your classroom you will find some objects that could be dropped from different heights or the same height, and at different times or at the same time.
   Some of these objects would be a blackboard eraser, a paper clip, a book, a flat piece of paper, a pencil, a crumbled piece of paper, and so forth.
   With a classmate, or by yourself, write down at least two experiments you could do to test your guesses.

4. Try out your plans.
   Do one plan and then the other. Ask a classmate to write down what happened each time.
   Try out the other person's plans while you write down what you see.

Presenting:

Make a statement of what you think will happen almost every time, and why. Decide what you think would happen every time and with other objects. Write a sentence telling your decision and why you think it will happen almost every time.

Here is one suggested way for making your statement with reasons.

__(your object)______ and _(your object)_______ will fall ____________________
almost every time if they are dropped ______________________________________
because ____.

For investigators (choose one):

1. Lay a pencil on your desk; balance a ruler on it. Take three pennies and try to put them in places on the ruler that will keep the balance. Try out several ways. Write a statement of what you found out and why you think it happens that way.
2. Make two paper airplanes. Work on one until it flies. Make a statement about why you think one flies and the other doesn't.

Teacher Guide

Focusing Objectives:
- Introduce and use language and method of science investigation
- Follow simple steps of science investigation
- Frame inquiry questions
- Make statement about results of investigation

Perceiving through Confronting

Motivating Involvement for Opening: The cartoons represent the commonplace view of the discovery of gravity by Isaac Newton. However, they complicate the situation by raising the question of whether heavier and/or bigger objects fall faster than light and small ones. Including a picture of a maple seed drifting down adds one more factor, the effect of air resistance on falling objects. Use the cartoons to stimulate questions about this phenomenon. You may want to ask whether a feather would fall at the same rate as a shot of lead would. Secondary science teachers usually have a vacuum tube that can be used for this phenomenon. You may want to stimulate questions by asking some about the cartoons: Suppose these trees were all next to each other and there was a person in each tree and they would drop them at the same time. What do you think about who would get hit first?

Ideating through Dialoguing

Learners, individually or in pairs, may need help in formulating their guesses or predictions. Suggest an "if" sentence. "If the objects are all dropped at the same time they will ______________________." All guesses should be accepted in order to raise interest in experimenting to find out who has come closest to what actually will happen.

Many ideas for experimentation can be expressed. The children may think of some very good plans. Some they could try at home or outside, but you will need to stress using materials and situations that would be possible in the classroom without being troublesome or dangerous.

The teacher may need to help the students focus on one or two experimental plans at a time. It would be important, however, for everyone to participate in an experiment regardless of whose idea it is.

There may be need to provide opportunities for oral presentation of statements describing what happens regarding the falling objects. Following a discussion the children would then write their own statements.

Presenting through Rehearsing

Optional Activities: These are suggestions for further small experimentation in the room. Some simple experiments can be done in the classroom with paper.

For Engineers:

Try to make a piece of paper stand on end. Let each of the children experiment with as many ways as they find possible. If no one discovers that it can be stood on its sides by folding it different ways, the words "try folding" can be presented. They can try having the pieces of paper on edge hold up other pieces of paper or thin paperback pamphlets or books. Then they can speculate on why some foldings such as a star shape will hold up objects of more weight than just one fold. Students may finally draw diagrams of their experiments and write a sentence or two describing what happened and why.

For chemists:

Place four or five thin slips of different type paper in a glass one-third full of water with green or blue vegetable dye in it (tissue, writing, drawing books, cardboard, etc.).

Observe how far up the different papers the dyed water goes. Chart these observations. Speculate why this dyed water climbs higher in some papers than others. Describe each type of paper and state the height of the capillary action for each one. Then work out your findings with the same kind of paper using another dye. Now state your hunch of why capillary actions work differently with different types of paper.

A Planned Interrelating of Language and Thinking with Content Areas Across the School Curriculum

Subject matter units complement and extend an English Language and Thought Core.

The teacher, through formal and informal curriculum planning, can set the stage for confronting situations which will provoke language and thinking development in students. Because language and thinking are intertwined, it is inevitable that certain modes of thinking use certain language structures. The teacher can integrate these two if curriculum planning and organization always include them. The teacher needs to think of appealing life situations which have potential for bringing forward the desired thinking and language, and will be workable in the school settings--Teacher Situation Idea. Then educational objectives can be considered which should be stated in terms of the ideas, concepts, generalizations, and attitudes that teachers want the learners to be able to express--Expressive Outcomes. Teachers also need to keep in mind the thinking and language processes and structures to be used--Process Objectives. Applications of the ideas need to be thought through in relation to certain subject matter contexts from the disciplines that are relevant to the topics and to the life experiences of the learners.

A Model Plan for a Teaching-Learning Activity in Language and Thinking

(Social Studies, 11-12 year olds)

Teaching Situation Idea:

Simulation of planning for a family camping trip focusing on the logistics leading into a comparative investigation of the Columbus voyage, Pilgrim settlement, and the lunar landing.

Expressive Outcomes: Learners will derive the following in their own terms.

Generalizations: Basic principles of logistics for exploration, travel, and settlement apply across the centuries to every expedition despite differences in transportation and sophistication in technology.

Concepts: Logistics are guidelines for planning and executing an expedition that are drawn from consideration of interrelated factors such as time, space, and environment related to the basic needs of food, water, and shelter.

Exploration is a scientifically planned trip to verify postulates about unvisited places and gather information that might alter the postulates or cause new ones to be developed (discovery).

Settlement is the situation where a group of people from the same culture move for various economic, political, or social reasons to a different environment.

Process Objectives:

1. Read original source material.
2. Use language of comparison and contrast, formulate hunches, and state conditions.
3. Use diagrams, charts, and maps.
4. Make lists of necessities with priorities.

Expressive Activities:

1. Students will compare and contrast the logistics problems of Columbus' voyage, the Apollo moon landings, and a camping trip.
2. They will draw inferences about logistical principles from their comparing and contrasting statements.
3. They will analyze why certain items must be taken on the voyages and trips using logistical principles.
4. They will speculate on what items would have to be taken on a manned space flight to Mars, or on Columbus' voyage had he known how far India was.
5. They will use conditional and causal sentence forms as they formulate arguments for and against the carrying of certain items given anticipated conditions.

Applicative Activities:

1. Students will prepare a chart of necessities to take on a moon trip and on the *Santa Maria*, and list them in priority with rationale. Then deliberate as a group to reach an agreement on priorities.
2. They will make up a version of the NASA game which forces small groups of role play astronauts to decide which items from a soft crash on the moon they will need to take on a trip to locate their mother ship 200 miles away.
3. They will draw pictures of Pilgrim house design with a list of materials and tools used, and do the same for a proposed encampment on the moon.

Historical Contexts:

The Columbus First Voyage as reported by his son Fernando Columbus.

The Apollo missions as recalled from TV taped accounts and from written accounts.

The Pilgrim's first year as described by Governor Bradford and Edward Winslow in original documents.

Young People's Present-Day Situation:

Going camping, setting out on an overnight hike in a deep forest, or being snowbound.

Materials:

Contrasting pictures of Columbus' ships, Apollo spacecrafts, the Mayflower load diagram, Lunar Module and LEM on moon, Pilgrim house models.

Management:

Large and small group instruction and discussion are vital to successful accomplishment because the development of language and thinking are, in the main, social processes of communication, intercourse, dialogue, argument, and critical analysis. However, individualized work and instruction by pairs are also helpful because thinking requires reflection and self-concentration. Contract systems which include planned tutorial conferences during instruction can be particularly rewarding.

Method Guideline for Teachers

Teachers need to keep several methodological approaches in mind when planning curriculum and instruction.

1. Devise instructional situations that require constant interplay of talking, writing, and reading.
2. Base instruction on experiential situations that are relevant to the learners' lifespace and that have the potential for thought and language expansion in them.
3. Embody instruction with language that is within or near to the language experience of learners, framing concepts that are within their view or within their reach of it.
4. Build on learner's own language that they bring to the new situations.
5. Foster the expanding of language meaning and structure through metaphorical expansions and sentence elaboration.
6. Insist on significant language and thought production in relevant contexts as the main means of practice and application of language learning.
7. Teach reading and writing through ways that are as close as possible to the ways that oral language is acquired and refined.
8. Give students and teachers options in their planning, teaching, and learning tasks.
9. Use a heuristic approach to helping students recognize the structures of thought and language while forming their own generalization about language as they develop a "language for life."

Assessment

The language-thought products of the teaching-learning situations will provide the evidence for assessment as part of the instructional plan. Content analysis can be quite systematic if the teacher sets down conceptual and attitudinal criteria for the assessment of these language-thought products whether they be presented in written, oral, or other media forms. The criteria are indeed the objectives. The objectives and/or criteria would be stated in teacher-adult terms but the development and expression of these concepts, feelings, attitudes, and values would be unique to each learner. The teacher uses professional judgment to assess how close the learners' expressive statements or presentations are to criteria in the objectives.

Assessment assignments can be planned along the way whenever presentations of learned ideas and language are being made. A modified cloze technique has been used for checking on idea achievement. Key concept words are left out to be replaced with their terms.

Piagetian interview protocols have been modified by educators for assessing concept attainment by setting up manipulative or simulated situations, similar in format but different in subject context, in which learners are questioned in both open and closed manners. Group interviews can be set up in the same way, the resulting discussion being taped and later analyzed for concept statement by participating learners.

The concept survey, sometimes used as an opening strategy in curriculum development, can be used again at the end of a unit of study to see how the group now looks in terms of levels of thinking and language usage after the instruction period. Also useful at this stage are certain classroom data gathering devices, including pupil feedback instruments that show how the instructional process was received.

Documentation

Teachers interested in improving their teaching effectiveness document their teaching activities, gathering data on the impact of their classroom practices on youngsters and the responses of youngsters to them. In one sense, teachers are gathering data all the time by being aware of what is happening around them. Feedback devices are tools designed to focus on aspects of teaching that teachers wish to examine and improve upon. Without seeking outside help, teachers can gather much information from students to improve the learning atmosphere in their classrooms.

Basically, the two types of diagnostic measures are the direct and indirect. Both types or a combination of each can be useful to measure a student's attitudes towards the subject matter, classroom learning climate, or a recent lesson.

Direct measures are also known as the "closed form" of questionnaire which is definite, concrete, and preordained in terms of items. The form of questions may be an arranged listing of multiple choice answers to direct questions (Example: How much do you feel you learned today? (a) much, (b) some, (c) etc.); or multiple choice endings for an incomplete sentence (Example: In today's lesson (a) I learned a lot, (b) I learned some things, (c) etc.). The major advantage of direct measures is that the closed-form questionnaire commonly provides categorized data that can be easily tabulated and interpreted.

Indirect measures are open-ended; that is, the respondent is asked to complete the sentence or compose an ending in his own words rather than selecting one of the alternative endings given in the form. (Example: What are some good things that happened during the lesson today?) Another technique is to have students write a letter to the teacher of a friend about their teacher, classroom, or school. Indirect measures are frequently very meaningful and extensive in depth; however, the work of tabulating and summarizing is time-consuming and requires more subtle scoring and interpretation.

Many teachers have found it useful to develop forms combining both of these methods. After the respondent has selected a response, he or she is asked to elaborate on this answer. Example: My schoolwork is: _____ A lot of fun, _____ Sometimes fun, _____ Isn't fun at all. Please write why: ________________________________. Teachers should keep the following criteria in mind before choosing between the direct or indirect measurements: (1) objective or purpose; (2) student's level of information on the particular topic; (3) the degree of structure that characterizes opinions on the topic; (4) ease with which the material can be communicated.[5]

Colleagues can also help in documentation by interviewing the teacher after observation of a teaching-learning episode with such questions as to why the teacher did thus and so, and what might be done differently next time considering the original teaching plan.

Evaluation and Curriculum Recreation

The teacher or teachers can evaluate the successes, failures, and "so-so" results of these assessments of ideas and language production and of the documentation of teaching by making professional judgments from these data in comparison with their objectives. They can then redesign their plans for the next time based on this evaluation and in colloquy with colleagues. An advisory system for teachers working on curriculum development in local school situations is the kind of in-service teacher education that suits the language and thinking approach to curriculum. Teachers working together with a cirriculum advisor can use the "perceiving, ideating, presenting" strategies as they confront innovative possibilities after assessing and evaluating what they presently do. In this way the curriculum is kept alive by continuous recreation, all of which is a language-thinking process in itself.

Notes

1. As reported in the Report on the Core Curriculum, Committee of the Faculty of Arts and Sciences, Harvard University, pp. 2-6 (mimeographed), 1978.
2. For information contact Moira McKenzie, CPLE, Ebury Teachers' Centre, Sutherland St., London, SW1V46H.
3. The author is indebted to the late Barry Sherman for his leadership in these discussions and to the contributions of the study group members, especially Jayne Delawter and Rudine Sims.
4. These examples have been reworked by the author.
5. From Gregg Davenport, "Curriculum Development Guides," mimeographed material from Wayne State University.

Interrelationships of Oral and Written Language in the Classroom

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One of the important findings in Gordon Wells' investigation at Bristol, England into language at home and at school (1980) is that variation in language development is related to the adult speech addressed to the child in response to interests and language very often initiated by the child. One of Wells' students, Jo Evans, described three categories of adult to child feedback: (1) plateau, in which the child learns he or she is being attended to; (2) procedural, in which the child learns he or she isn't communicating clearly; and (3) developing feedback, which shows the child that what he or she contributes can be extended, developed, and built upon. Developing feedback makes the child aware that discourse can grow and make new meanings.

If this is true for pre-school children acquiring language, then we must ask what kind of continuity we make in their school learning. We need to know in what kind of school contexts the learner is most encouraged to use and extend his or her own language and develop competency in reading and writing.

We are all reasonably sure about what is inappropriate or negative classroom practice. I propose to use positive examples met and encouraged in my work for the London Public Schools System (ILEA) at the Centre for Language in Primary Education, an institution concerned with in-service education in language and literacy for London teachers.

In planning their language and literacy programmes teachers are encouraged to keep in mind the interrelatedness of context and language, both oral and written, and to recognize that reading and writing are encountered not just in direct instructional situations but during events that occur throughout the day. Language use is determined not only by the subject matter, the ongoing activity, the books and materials in use, but also by the intentions of the participants, their roles, and their relationships. For language, both spoken and written, is best learned in use as it functions.

This idea of context and purpose is well illustrated by the work of 5-7 year olds in a S.E. London school. Their teacher, Mrs. Bugler, was very concerned about what she saw as sterility in the writing coming from her youngsters. She made this her particular study in a six week course at our Centre. Using one corner in her classroom, which changed frequently in relation to current interests, Mrs. Bugler set up a Post Office. Its purpose was real communication. She writes:

> I have never been really happy about my approach to writing with 5-7 year olds. I have always seen writing as communication between people. This is why I found it difficult to accept the value of writing as practice for its own sake.
>
> ... I now feel that the pressure to "get them writing" may discourage us from considering other equally important questions about the reasons for which children write, the meaning their writing has for them, and the extent to which it matters to them.
>
> ... The post office was set up to help children understand about money ... However, it sparked off a spate of writing which was quite impressive. Most of the examples are unobtainable because they are with the people they were written for, children away from school, cousins in the hospital, mums, headmistresses, and so on.

The children had many stories read to them. They told stories and played stories. Story making with puppets gave children an opportunity to play with language ideas. For example, they would develop an event such as *Let's Have a Party*. The puppets were named after characters in a story they'd read. The new story was conversational in tone.

> I am going To a party Today
> You can come if you wanT To
> Yes, I will come. I will aske My mum.

Models were made of simple stories they were reading, such as *The Haystack*. The children played through the story using their own and the story language. They wrote the dialogue in bubbles and attached them to the characters. When necessary, they referred to the text for characteristic language.

> I am climbing up the Ladder
> Let the dog out
> Whee! (as they slide down)

The teacher's goal was to have the children feel that writing served their purposes. She wasn't over-anxious about spelling and writing, knowing these would grow as the children developed competence. Some children wrote little stories to go in the hospital corner. These were used over and over again for reading to "sick" children or "sick" dolls. They kept a book for giving information about places they visited out of school on their own time. For example, one child wrote about her trip to the new swimming pool just opened in the neighborhood. Another child, Mary, wrote an account of a trip to the local library which led to an interesting development. She wrote:

> my visit to the LiBary
>
> Every Tuesday we go to the Libary to make things. We make things like Peg dolls cardboard sewing and weaving and pebble painting flower printing. We do drawing in all sorts of things. We make models is well. We make Easter chicks. We make lots of things we the craft work lady Janice. Sometimes when we go to the LiBary Janice is not here so we have to do drawings after we done drawing we stay for a little while then we go home.

She brought in the Peg doll she'd made and of course other children wanted to make one too. She showed several children how to do it--children who genuinely needed the information--not a teacher who already knew. In this way she had to make her knowledge explicit, both to herself and to her friends. In trying to match the language to the task she had to reshape it, make it more precise, more readily available to would-be doll makers. It became apparent that a book was needed so that anyone who wanted to could find out how to make a peg doll. Of course, all her efforts as a teacher had brought Mary's knowledge and language to a state of ready accessibility for making a written text. She was aware of the needs of her readers and with the teacher's help she made her book--complete with instructions and diagrams. The teacher demonstrated another way of making dolls, using a cone instead of a peg. These instructions found their way into the book, too.

Margaret Donaldson (1978) reminds us that for young children, language is embedded in the flow of events that accompanies it. They interpret situations rather than the words themselves. In order to extend their learning they need to turn language and thought in upon themselves and begin to pay more attention to language itself. She writes:

> He must become able not just to talk but to choose what he will say, not just to interpret but to weigh possible interpretations. His conceptual system must expand in the direction of increasing ability to represent itself. He must become capable of manipulating symbols. (p. 89)

It would seem that children, enjoying the experiences described above, are using language to make their own meanings and at the same time building an awareness of language in its own right.

I want to give two further examples from young children, both seven years old. David, who has been cooking and enjoying real first-hand experience with all the talk that goes with it, writes:

> I made the margarine and sugar all creamy by mixing them around. Then we weighed in the plain flour and put it in the sieve and patted it and then the flour all came out.
>
> When I rolled out the pastry I cut out 2 shapes and then painted them pink. Then the paint came out a darky pink when I cooked them.

And--Danny's story about dragons, in which he tells us what he had learned about dragons from his literary experience.

> In my picture you can see a DraGon. DraGons lived Long a go. Smoke comes out of their mouth. Most DraGons are Green. Some DraGons have spicks on them like myne. Some times DraGons Go to eat Princess-is But knights come to kill the DraGon.

The interrelationship of oral and written language so apparent in stories that are told and read aloud, enables children, in Henderson's words, to "... know the significance of written language ... as it serves their world of sense and feeling through story, myth, and prayer." (1977)

My final example concerns a Third Year (fourth grade) class in an interesting cosmopolitan, multi-racial part of London. The youngsters live mainly in large, dilapidated, over-occupied Victorian houses or in local authority-built houses that have replaced them. The school was about to celebrate its centenary which means it was built in response to the Education Act of 1874 when education became compulsory. The children were interested in what life was like 100 years ago. The teacher provided opportunity for generating questions in a brainstorming session. What did they want to know? They decided they wanted to know about children. What was life like for them? Did they go to school? What was school like? What about the children who worked? And what did they do for fun?

Two girls chose to find out about Dame Schools. Together they wrote a story in which they brought together and made alive for themselves and their classmates an account of life in a Dame School. They collaborated in their search for information and in writing their stories. The two girls read Syena's story to their classmates. They invited their peers to serve first as an attentive audience and then as participants in the ensuing discussion, responding and asking questions and offering advice.

> *Life in a Dame School*
>
> The morning started when the children came in. When I thought everybody was here, I got one piece of paper. It was the only piece of paper that I had. On it was all the names in the class.
> "Susan."
> "Yes, Miss Dame."
> "Abigail."
> "Yes, Miss Dame."
> "Nicolette. Nicolette! NICOLETTE!"
> Then I looked up and saw Nicolette sleeping, and said, "Susan go and get the cane." So Susan got the cane and brought it to me. I walked slowly to the place where Nicolette was sleeping, and I tapped the back of her neck. She suddenly woke up. I said, "Why were you sleeping in class?" She got up and bent down. She knew what was going to happen. I got off the shelf a metal top which fitted onto the cane. Then I took Niki--that is what we called her for short--by the ear, and I took the cane and I hit her two times on her bottom. In a way, I felt a little sorry for her.

Then I asked her why she was sleeping in class. She said, "Miss Dame, I am very sorry but my mother and father had to work in the shop, and because it was very busy, I had to work too. So I went to bed very late. And I had to get up very early and clean the shop. In the afternoon I did ... (End of Niki's quote) we did some sums. Niki got hers wrong. I hit her on the hand with the cane, and put a dunce cap on her. The next day we did out chanting out. I found that Niki could not sit on her bottom for a long time.

She did not look at me for a long time, so I said, "Niki, tell me your letters, A to Z, and don't get them wrong or else.

"A,B,C,D,E,F,G,H,I,M,N..."

"Stop! Stop!" I cried. "You've done it wrong. Why don't you learn them at home? Oh, I've forgotten you have to work at your mother and father's shop. I will come to your shop and see your mother and father, and talk to them about your sums and letters." So after school I went with Niki to her house, and talked to her mother and father.

In the morning, Niki came to school on time. I asked her, "Tell me your five times table."

"One five is five,
Two fives are ten.
Three fives are fif...um...sixteen"

"Sixteen is not in the five times table. I thought I told your mother and father you had to learn your letters and sums."

After the story the teacher signalled to the children the procedures for the discussion.

"Talk to Niki and Syene, not to me," she said.

The children responded and criticised, talking and listening to the writers and to each other. "I think it would be better if ...." says William. "Do you see what I mean?" asks Syena. "I don't understand really," says Kurt. The children handled the discussion very well.

Here are two extracts from the discussion:

Susan: Well what is that cap thing that you put on their head?
Syena: Dunce cap.
Susan: Yes.
Syena: Well. It's like in a cone shape. And you put it on your head. And round it, it says 'Dunce.' And then you put it on your head, and then you stand in a corner. When you do that, you know they're naughty. It's the way they did it.
Teacher: Niki, how did you ... Would you tell the children the way you wrote your story?

Niki: Er...um...I wrote my story in um, sort of the, the same way Syene did but in different words. So the story sort of goes together.

Teacher: But how?

Niki: It kind of continues.

Teacher: Do you understand that? Do you understand what Niki said?

Kurt: She said the same way Syene did it, but in different words.

Niki: Like when, em, she, um, said that er..."I er...I bent down. Well I sort of...Then er... (Niki reads) Then I walked over to the Dame. I knew what was going to happen. She made me bend down. When I bent down, I saw the cane rise into the air. Then I felt the cane off...on the back of my bottom when she hit me.

William: I think it would be better if they...if she joined it. Carol... in the story. (?)

Syena: How do you mean?

William: Like, you know you got up to the five times table? Then Niki could carry on from there.

Syena: Yes, but if she does that. It's starting from the beginning again of my story. It doesn't, you know...it...it doesn't, in a way, go together, but it goes together in the words how we read it.

William: I know but she'd do it...She'd put...sort of put different words to it, wouldn't she?

Syena: Yeah, but she'd have to do that. She'd have to write more, 'cos she couldn't start from the beginning 'cos it would go with mine. And then, in a way, go together. D'you see what I mean?

William: Mm.

Kurt: Miss, it's kind of like that poem they wrote about the-erm-monkey.

The teacher acted almost as a chairperson in the discussion. Yet, her role was most significant for it was her expectations and the framework she set up that allowed the children to operate in the way they did.

It is useful to think about the range of processes, many of them intuitive, that were going on as these girls talked, read, and wrote their stories:

Selecting a Topic

Within the curriculum the teacher provides space for the children to choose and work on their interests. Syene and Niki opted to find and present information on Dame Schools.

Finding, Sifting, and Organising Information

Using and developing appropriate reading strategies, the children dipped into the range of resources the teacher had made available. They began to build up a picture of Dame School life. They began to imagine and speculate about life for both teacher and child and this, in turn, became the framework for focusing and organising further reading. Britton describes this process when he says:

> As children read they build in (to their framework) whatever 'fits' piece by piece. They reject what doesn't fit, or is of no interest or concern. What they get is the sum total of what they've built in plus what they've made of it by making their own connections. (1970)

The teacher joined them while they were working. She gave them opportunities to review and reflect upon their reading. She helped them make corrections and raise further questions to pursue. Keith Gardner reminds us that "effective reading is a casualty where there is no time to talk about reading reading." (1979)

Deciding upon the Form of Writing

Why did they select story form for their writing? It's easier than non-narrative writing. It's a familiar form--they know its pattern--they know how to create and develop characters, how to sequence events, and how to end it.

The children had enjoyed Eleanor Farjeon's poem, "It Was a Long Time Ago." They recognised the two voices within it and wrote some poetry in the same vein. They decided they'd write about the Dame School from the point of view of the Dame and the child.

Collaborating

The collaborative nature of their learning meant they gave each other immediate response and feedback while the reading and writing were going on. It gave them opportunities for thinking and reflecting--for arguing their point. It made them aware of the likely response of an audience--all good writers take account of their readers.

It helped them select the content from the range of potentially usable material they were meeting in texts, and build the logic of their story.

Talking Through and Acting Out

As they talked and acted out life in a Dame School they assimilated both language and information met in their reading, e.g., "Now we'll do our chanting out." They built up their own personal meanings as they stepped into the shoes of people living in a different period. And so, their knowledge is brought to a state of ready accessibility for further reading and for writing.

Writing

The discipline of writing distills all that's gone before. They come face to face with the basic skills of writing--what to say and how to say it. Their whole experience of literature--meeting a variety of texts, feeling and responding to good stories and poetry--provides a reservoir on which they draw in making their own personal meanings. They find the language they need to indicate time and action, the words that best carry the theme.

Seyne, conscious of her audience, launches her story in true literary style. "The morning started when the children came in." Niki's feelings are apparent in, "I saw the cane rise in the air."

Through their experience of literature children find models and language for their own writing. But there's more happening than pulling out stylistically impressive phrases. It's the fusion of feeling and commitment that makes the difference between trotting out approved words and phrases, and genuine creative endeavour.

The classroom context itself brings up the need for children to write in different modes as the need to describe, report, share information, etc. arises from their work in math, social and environmental studies, and so on. Storying, however, is their most powerful form for creating personal meanings, for weaving together what they make of their experience of writing that forms the bridge towards the more objective and situation-free language that will take them into further study.

Can we then identify the elements of a classroom context which seem to foster an interrelationship of spoken and written language, which allow a continuity between learning at home and school, that acknowledge the constructive nature of the child as a learner?

In the examples given, we have seen children *doing* things. All of them were engaged in significant first-hand experiences accompanied by discussion and social talk. And, all of them represented their knowledge and feelings through art, drama, and writing. The classroom environment ensures that all these children enjoy a range of stories and poetry, and that they see books as part of living with something to offer them, that stories and poems touch their inner world of feeling and imagination. Through the stories read aloud to them they have begun to internalise the cadence of written language, to build up a set of expectations about story structure, to see how the parts go together and how they are connected. Their experience with literature provides models for their own writing.

The content of the curriculum and their growing range of interests take children further into a variety of books and materials. Through interaction with teacher and peer they are helped to determine their own purposes, raise their own questions, and use a range of appropriate reading strategies. The teacher allows the children space to follow their own meanings and to frame their writing in their own way, as Burgess (1973) puts it:

> ...to merge the image of the writer in the image of the individual--as a person committed to his own search for meaning, who has to interpret the flow of events which happen to him and re-interpret in his own way the wisdom and knowledge of others which lies outside him, as a person; who finds in language an instrument at his disposal and in writing a way of using it. (p.23)

Response to Literature in a School Environment

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In spite of all the progress that language researchers have made by learning to watch and to listen, those of us who are interested in children's response to literature have been slow to take the hint. We have always been good listeners, but we have seldom tuned our ears to real classroom settings. We have been even slower to look, in any organized way, at forms of response that come before or go beyond words, although we often sense that these are important reactions, especially for young children.

What really goes on in a school where literature is used and valued? What do first graders do to reflect interaction with books, or third graders, or fifth graders? How is it different? When do expressions of response just happen, and when do teachers make them happen?

In order to explore these questions, I spent four months as a full-time participant observer in a kindergarten-through-grade five elementary school, watching and listening, talking with children and adults, taking notes, taking photographs, and making tapes. I spent several weeks with each of three multi-age classes--a kindergarten and first grade group, a second and third grade, and a fourth and fifth grade--getting to know about 90 children.

One of these was a first-grade boy, not quite seven years old, whom I will call Warren. One morning his teacher took the class on a walking trip through the school building so that they could see all the displays of children's work that had been arranged for a special parents' night program. Warren paused and nearly fell behind because he stared for such a long time at a picture made by an older child, a fair copy, in water color, of an illustration from Peter Spier's wordless picture book, *Noah's Ark*, showing the wooden ark adrift in a storm, with lightning overhead. The book was familiar to Warren, I knew, because he had made some comment to me about it earlier in the year.

When the class went back to their own area and settled to work at individual tasks, Warren's choice was a painting, made on a wide sheet of brown wrapping paper. The first items to appear in his picture were a large wooden ship, water, and forks of lightning.

"Is this a story I would know?" I asked him. "Or are you making it up?"

Warren said I probably wouldn't know it.

"Is it like *Noah's Ark*?" I asked.

"A little," he said.

At this point I should add that for several days the class had been focusing on folk tales as a genre, and that the teacher had spoken to them that very morning about the possibility of beginning some pictures of "The Three Billy Goats Gruff." One of the other first graders came by Warren's work and stopped to look.

"Hmmm," he said, "there's the bridge and there's the troll and ..."

Warren was incensed. "No! That's *not* the three billy goats. That's Captain!" He bent back to his painting, mumbling something about TV, and I assumed, mistakenly, that there must be some connection to Captain Kangaroo. Shortly after this interruption he got a piece of chart paper and began to write, keeping the picture he had made close at hand.

After lunch the afternoon began, as usual, with the teacher reading aloud to the whole group, this time a picture book version of *The Three Billy Goats Gruff*. Warren joined in the discussion of what a troll would look like, and of the special way in which the story ended, with the words "Snip, snap, snout/ My tale's told out." When the teacher then suggested that some of the children might write their own folktales, Warren went back to the story he had begun in the morning, reading aloud for me, at my request, what he had already written.

> The snowy story by W--
> The Captin is saling a ship
> that is woodin. Soon the
> Captin ses" is There a storm
> cuming up?" he seiad. " I don't
> know?" she said. The Captin
> was right. There was a storm
> wen the storm hit the sea the
> moon is hidin in the fluding
> sea. The man is fros solid.

I commented that it was very sad and asked about the "she" who appears in the dialogue. "What happened to her?" I asked.

"She drowned."

The teacher, who had joined us, asked Warren if he had been thinking about death.

"No," said Warren. "I've been thinking more about folk tales. You know, like where the beast gets killed." While we adults pondered this apparent reference to the destruction of the troll in the book which the teacher had just read, Warren went back to work on his story, adding this:

> The light house is looking
> for the moon. The ship is creeking
> The gral is foling out for the
> ship. and they all ful in the
> water. But the Captin didn't.

When Warren's mother came to pick him up at the end of the day, everyone was eager to show her what he had done. I chatted with her for a moment and almost as an afterthought, remarked that his story language was so poetic that it reminded me of Longfellow's "The Wreck of the Hesperus."

"Well--" said Warren's mother, "you know, we did see that on TV." She explained that the poem was read while a sequence of pictures was shown in one segment of an educational program that she and her children had watched together.

There is a postscript to all this. The next day, when Warren's story and picture were put up on the classroom wall for all the children to enjoy, he got his marker and added this on the bottom line: TTTTWeeWeeWee. Warren told his teacher that folk tales have special kinds of endings, and so did his story.

I offer this rather long example because I think it illustrates some of the advantages of looking at response to literature holistically, in a natural setting. It highlights the fact that response is expressed through forms that usually bear other labels--in this case, writing. Our interest in the writing itself, the spelling and the awareness of conventions, may keep us from looking as carefully as we might at the way children are dealing with source material: borrowing from a picture book, transforming a narrative poem, experimenting with one of the features of folk tales, making connections, and generally demonstrating what it was in these sources that had intrigued them as well as revealing their sense of what is possible and proper in a story.

We might also recognize here that Warren's response was not entirely a matter of words. We should not discount the attention he gave to a picture which recalled for him a familiar book, nor his own painting of a picture which somehow served as an important link between his thinking and feeling and his own story. This is in line with other evidence that we have about the relationship of verbal and nonverbal modes, and it ought to remind us that the nonverbal aspects of response to literature may be crucial ones, especially for young children.

The temporal dimension of Warren's response is important, too. It took a long time for "The snowy story" to happen. If responding is a process that goes on while we read or hear a piece of literature, it is also a process that may continue afterwards. First answers to quick questions are likely to fail in showing all of what children think or know, or are able to say. In Warren's case, thought and feeling found expression long after first contact with the material.

Perhaps the most noteworthy thing about this particular example of response is that I was able to observe it in a classroom at all. Many school environments would not permit the long stretches of uninterrupted work nor encourage the independence, nor provide the resources of literature and high regard for language that were characteristic of this classroom. Looking at children and literature in a school setting brings home the importance of that setting. Expressions of response always happen within a context and are influenced by the opportunities and limitations which that context provides.

Of course, not everyone who shared the setting of Warren's classroom was equally attuned to literature. Warren was one child, with a uniquely personal style, and it would not be fair for me to give the impression that my log was full of notes on children who had been brooding over Longfellow. The log *was* full, however, of extremely diverse data. Being with ninety children over several months' time generates a great deal of evidence that might then be molded into a number of different shapes. I chose to organize my observations in three ways in order to get at basic questions about forms of responding, age differences, and the teachers' role in encouraging response.

Forms of Responding

My first procedure was to lay out everything I had seen and develop from that a coding system to identify and classify any and all activities that reflected children's involvement with literature. The result is a list of response events, arranged roughly by the sequence in which response to a selection might occur, although the placing of oral response in the middle is arbitrary, since free comment occurred anytime.

Response Events: Observed Activities That Reflected Children's Contacts with Literature

1. Listening behaviors
   body stances; laughter and applause; exclamations; joining in refrains
2. Seeking contact with books
   browsing; showing intent attention; keeping books at hand
3. Acting on the impulse to share
   reading together; sharing discoveries
4. Oral responses
   retelling; storytelling; discussion statements; free comments
5. Actions and drama
   echoing the action; demonstrating meaning; dramatic play; child-initiated drama; teacher-initiated drama
6. Making things
   pictures and related artwork; three-dimensional constructions; miscellaneous products: games, displays, cookery, etc.
7. Writing
   restating and summarizing; writing about literature; using literary models deliberately; using literary sources unaware

The surprise for me in this listing was in the necessity for a category which I have called "impulse to share." Children were encouraged and sometimes even directed to read with a partner, but many shared reading experiences were the children's own choice and seemed to reflect a common positive reaction to a book or poem. Most of the truly spontaneous events which I saw, however, ones which "just happened" without prearrangement by the teacher, or even without teacher sanction, could be called the sharing of discoveries. Such events began with cues for gaining another's attention: "Look at this!" or "Listen to this!" or nonverbal equivalents like poking and pointing and beckoning. These encounters sometimes developed to include formulated response statements, but not because the children had set out to play a critic's role. Their sharing seemed related not to the desire to talk about the work, but to the need for reexperiencing it and for having their own responses affirmed by another person. The amount of spontaneous sharing that went on suggests that there may be an important aspect of response that is predictive, not in the sense of looking ahead to what will happen in the text, but in anticipating the reaction of another.

Age Differences

After I had a basic classification of response events, I was able to shuffle them into the grade level groups where they were seen most frequently or in most pronounced form. It is possible to look at this list and see rough correspondences to developmental stages, although in actual occurrence there were huge overlaps, so that the clearest comparisons came in setting the youngest group alongside the oldest.

Characteristics of Responses Observed in Grade-Level Groups

K-1 Motor and nonverbal responses; trying out or echoing a described action or sound
Many comments based on personal association
Focus on details, bits and pieces of story rather than work as a whole
Focus on generic nature of characters (*the* mother, *the* princess, *the* fox, etc.)
Story elements appear in dramatic play
Use of embedded language to talk about stories; specific, story-related terms for expressing a main idea
Concern with separating the possible from the fantastic
2-3 Focus on mastering the ask of reading; demonstrating and sharing books as a representation of personal accomplishment
Stronger and narrower preferences, especially in books for personal reading
Use of disembedded language; generalizations about particular story ideas, as in stating a universal moral for a fable
Wider knowledge of story conventions and the ability to manipulate these in writing, storytelling, and drama
Some inclination to test fiction against real life; beginning interest in the probable rather than just the possible. 4-5

The K-1 group were most inclined to use their bodies to respond, echoing the action of a story as it was read to them, or demonstrating its meaning when questioned by going through appropriate motions. In a discussion of the Emberleys' illustrated rhyme, *Drummer Hoff*, for instance, some of the first grade boys spontaneously attempted to arrange themselves as parts of a cannon to explain how the one in the book was built. Dramatic play was also common in this group; a big bad wolf appeared and reappeared in the play corner after the class had heard the story of "The Three Little Pigs."

In the middle groups, grades 2-3, the prevalent forms of response events reflected the children's preoccupation with the task of becoming independent readers. Their concern with accomplishing and demonstrating their proficiency in reading was evident in the proportion of time spent reading together and sharing discoveries, and in the frequency with which they commented about conventions of print or expressed preferences for books they could read by themselves. Otherwise this group represented a transitional stage, where different children were at different times more like K-1 children or like the older group, rather than being separately identifiable as a middle group with its own characteristic responses.

The children in the 4-5 class did not engage in dramatic play as such, ans were generally less reliant on actions and more confident with words. While children at all levels sought out favorite books, these older ones showed a distinct narrowing of preference in books for personal reading, with strong feelings for and against particular titles. More intent attention to books--that is, reading on, no matter what, right through recess if necessary--was seen at this level. But the most striking thing about fourth and fifth grade responses was the children's own awareness of the range of ways in which they might express themselves, and their increasing ability to manipulate the various modes.

Some of these age-group differences in types of response events can be illustrated by comparing examples of the activities that centered on a single book. The book was Shel Silverstein's *Where the Sidewalk Ends*, a collection of humorous verse that was popular with all three classes.

In the K-1 class, two first grade boys asked me one day if I would read "The Acrobats" aloud for them, a verse that they obviously already knew. They arranged themselves at the top of the double step that led down into the library, and as I came to the last lines that mention a sneeze and imply that the acrobats will fall, these two tumbled down onto the carpet, giggling. They didn't talk about the meaning of the verse; they demonstrated it.

In the second and third grade class, *Where the Sidewalk Ends* was passed from hand to hand during work time as children read favorites to one another. They squabbled over who would take it home for the evening. Comments showed that besides their enjoyment of the content, they were frequently using it as a reference point for conventions of print. One girl pointed out a poem that "repeats lots of words" and another child wanted to locate each poem in the index before reading it aloud to me.

In the fourth and fifth grade class, a group of girls who were planning a skit picked up the title and meter of a verse called "Ickle Me, Pickle Me, Tickle Me Too" and used it to compose a chant that would end their own production, consciously choosing from the material to serve their own purposes within their own frame.

Another aspect of the comparison between younger and older children in this study involved looking at qualitative differences that might show up within single forms or across a range of similar events. For instance, younger children frequently centered on parts rather than wholes, while older ones demonstrated some ability to deal with a story in more generalized terms. Kindergarteners and first graders often commented about details in pictures or texts without relating that bit to the story as a whole. "Itemizing" seems to be a fair term for this strategy, which was evident in their picture making as well as in their comments. Early in the study, kindergarteners painted scenes that were collections of objects and characters from a story, while older ones (even slightly older ones) made pictures that showed some relationship of characters, setting, event, to one another. Although the older children sometimes used the itemizing strategy, they employed it deliberately; when summarizing stories they almost always did a better job of incorporating details efficiently than did the younger ones.

Older children's ability to abstract a theme statement from a story indicated greater facility with language as well as their broader perspective on the material. I talked with nearly thirty children across the grade levels about the ideas in one book, *The Magical Drawings of Moony B. Finch* by David McPhail. In this story a little boy who loves to draw is given a box of crayons and thereafter practices his artwork so much that he becomes marvelously skilled. One day in the park his drawings are touched, and they slip off the paper and become real, causing a great commotion among those who want Moony to keep drawing pictures that will make them rich. Although he eventually finds a way to escape the clamor, by drawing a fierce dragon, it means that he must in the future keep his magical talents to himself.

When asked "What lesson does Moony Finch learn in this story?" some ten year olds gave answers that indicated their recognition of the general applicability of Moony's experience: "Well, he learned people were selfish"; "You can't do everything for everybody." Most six and seven year olds, on the other hand, like a few older children, took the question literally. What lesson did Moony learn? "He learned to draw" was a common answer. When the question was elaborated--"Did he learn anything about people? Will he keep on drawing pictures for people who want them?"--some of the younger children could frame different answers: "He learned never to draw like that again, because all them people would say, 'I want this! I want that!'" and "He shouldn't go out and do sorts of stuff like that because it might happen again." Their difficulty arose not so much in getting the point of the story (or this part of it, since no child recognized the inherent irony of the artist threatened with destruction by his own art); what they could not do was express the point in terms that would take it beyond the particular text. Meaning was for them embedded in the story itself, and had to be expressed in those terms. My favorite example, I suppose, is the first grader who said that the lesson to be learned from the story of "The Little Red Hen" was, "When someone already baked the cake and you haven't helped, they're probably just gonna say no."

In terms of story conventions, younger children understandably demonstrated less familiarity than the older ones. Kindergarteners and first graders recognized and used conventionalized endings; one of the characters in an impromptu drama once called out at the end, "And we lived happily ever after!", although they were puzzled by unfamiliar variations like the "Snip, snap, snout/ My tale's told out" mentioned earlier. Of particular interest also was the younger children's use of literary prototypes such as "*the* witch," "*the* wolf," or "*the* little girl" in their storytelling, writing, and dramatic play. Even when books and stories named a character and clearly delineated the character's peculiarities, the K-1 children seemed more at home with generic names and types. The exception to this was in their references to media-popularized characters; I heard a great deal about Dracula and the Incredible Hulk and the Superheroes, who might be identified as prototypes with proper names.

The fourth and fifth graders, when they commented about character at all, were more likely to offer comments that reflected a sense of a character as a particular creation, like or unlike real people. All in all, the older children showed their wider experience with stories, and this was nowhere more evident than in their conscious manipulation of models for composing. One ten-year-old girl confided to me, on a writer-to-writer, shoptalk basis, that she had now read so many fairy tales that it was easy to write one. The ability to parody showed up at this level also, with one fifth grader writing a modern version of "Jack and the Beanstalk" where Jack and his mother had "gone so poor they had to sell the Corvette."

Along another track, younger children were often preoccupied with establishing the truth or reality of a story: Could it possibly have happened? After their first hearing of the story about Moony Finch and his drawings, I gave some of the children, one by one or in small groups, my tape recorder and a copy of the book, asking them to say whatever they wanted about it, or to talk it over with one another. First graders spent a lot of time puzzling over it, and attempting to explain it in terms compatible with their understanding of the world and of other stories. One child, taping by himself, said: "I think it's not really true. Sort of like a folk tale, I think. I just don't know what--how--he does it. It's like magic." In a group of four first graders discussing on their own, the conversation went like this: Child 1--"It's not really true." Child 2--"I know. It's just a story they made up." Child 3--"This old man set down 'n made it up."

When questioned later about the events of the story, all the children agreed that pictures could not come to life, offering the rules of evidence as proof. A kindergartener picked up his own drawing and shook it, demonstrating its stability; a first grader argued that "... if things slipped off papers, then no one would be able to show a picture to somebody."

As to the reality of the dragon pictured in the book, children were not so sure. It needed more explaining. One girl offered the idea that "It's people in there, inside of the dragon...makin' fire come out of his mouth." Another said that it was a paper dragon. Even the first grader who was able to explain that "this is a book and books ain't true" felt it necessary to justify a comment about the dragon's not being real by studying the illustration and saying that "dragons don't have them tails like that." At the second and third grade level, the problematical events in the book were accounted for by simple explanations: it "couldn't really happen" and "it's fantasy," and "that's how it is in the story." Children in the older group had little trouble phrasing statements that recognized the world of the book as a sphere of its own.

It might seem from these examples that concern for the possibility of a story was purely a feature of developmental stage. Certainly the older children's facility with language let them deal with the question more easily. It was also true, however, that many of the stories which drew the older children's attention were proportionately easier and more predictable, for them, than the younger children's materials. When confronted with a text that was unfamiliar, unpredictable, or otherwise challenging, older children toc spent some time in sorting out its possible and impossible aspects. It may be that concern for the distinction between real and not real is a first-level response to puzzling material, regardless of developmental stage.

Although age level patterns were easy enough to find in the evidence I gathered, It was more difficult to consider which of the differences could properly be ascribed to development, and which to learning. Response strategies seemed to be learned behaviors; that is, children learned how to go about the tasks of responding, how to participate in a discussion, how to use materials, and so on. Their familiarity with many stories, their references to past projects and activities, and their occasional deliberate imitations of teacher-talk all spoke for the influence of schooling.

The Teacher's Role in Encouraging Response

I was concerned from the beginning with the way teachers make things happen in the classroom, a concern that goes beyond techniques for direct teaching of literature. As I pushed my observational notes around, I discovered a set of repeating items that were situations arranged by or facilitated by the teachers: contexts for encouraging response to literature. These constituted my third level of categories and served to describe a total setting for interacting with literature, not just learned about it.

Teacher-Created Contexts for Encouraging Response Events

1. Selection of titles for classroom use,
   emphasis on quality and relatedness (focus on genre, topic, theme, author or illustrator, etc.)
2. Assurance of access to books,
   putting books within children's reach, in attractive displays; providing time for browsing and reading
3. Presentation of literature,
   reading aloud every day; introducing books to individuals and to groups
4. Discussion of books with groups and individuals,
   including use of some critical terminology (when children had the idea but needed the words)
5. Provision of space, time, material, and suggestions for book-related activities or extensions
6. Provision for the formal sharing and display of completed work
7. Plans for cumulative experience with literature,
   allowing for children to consider some selections and genre in depth, and in a variety of ways over time.

Putting this description of the setting alongside the events that it helped to generate suggests some thought-provoking connections. Access to books, for instance, seemed to have a great deal to do with oral response. Children were far more inclined to talk about a book they could hold in their hands rather than one they had to hold in their heads. Often when I asked a child for an opinion of a book I had seen being read earlier, the first response was, "Wait a minute. "I'll go get it." On one occasion I questioned two first graders about a mural they were making based on the book *Tikki Tikki Tembo*. One fellow began, itemizing, "Here's the well, and here's the old man with the ladder, and here's where they live, and wait a minute--" He disappeared in the direction of the bookcase and came back a moment later, empty-handed.

"What were you looking for?" I asked.

He said, "That book, *Tikki Tikki Tembo*."

"Can't you tell me about it without the book?"

"Nope," he said. And he didn't, either.

The only time children seemed comfortable in talking about a book without having it in hand was when they knew the story exceedingly well. That says a lot, I think, about what classrooms should look like: full of books, placed where the children can get to them rather than tucked away modestly, with nothing showing but their spines.

The opportunities that children had to browse and choose and read together also encouraged oral response--not formal statement but the strongly motivated beginnings of real person-to-person conversation about books, the occurrence of which may well be more important than teacher question/child answer situations. The opportunity to show a book to a friend, to giggle over it, offer a private opinion, even argue a little, seemed to keep children interested and in contact with books they might otherwise have missed. But this is a case where what I would call a response behavior is also a social behavior, and in order to encourage this kind of response, it has to be all right for children to talk together where the books are.

Another connection that became apparent as I looked at when responses happened was that familiarity breeds comment. Children were more likely to have interesting things to say about a book if it was one that they knew well, particularly if the group had had a chance to consider it from various angles, through different kinds of activities. Sendak's *Where the Wild Things Are* surfaced over and over again in the youngest group, as a read-aloud book, and as the subject of pictures and writing. Together the K-1 children and the second and third graders worked with the school's unified arts teacher to plan a drama based on the book for their Christmas program, and they watched and discussed the animated film. On the day of the program the book was read aloud once more, and the first graders began the discussion on their own.

"That's not true," one boy said of the hot supper waiting for Max at the end of the book, "because when I'm out playin' and I come in, my supper's *cold*." Then with the teacher's help they explored the meanings of events in the story that they had pictured and acted out and talked about in different terms, with a depth that I suspect would not have been possible before. Frequently teachers hesitate to return to the same books for fear of boring the children, or insulting them, or wasting their time. But the teachers I observed often led students back to the same material, and with good effect.

All the while that I was sorting through my notes on classroom contexts, it was clear that their most powerful feature was their manipulability. Teachers could shuffle their schedules and push around their furniture and change their book collections--and it made a difference. Their literature-based program did not depend on expensive commercial materials, just books and good planning and commitment to what they were doing. This was probably the most pervasive implication of the study: Kids are powerful learners, but teachers have power, too, to make that learning happen.

Peer Dialogues across the Curriculum

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Most research on language in the classroom has focused on interactions between students and their teacher. To some extent, this focus is a result of research technology. It is much easier to hear and record a classroom lesson when speakers talk one at a time and the rest of the room is reasonably quiet, than to overhear what children say to each other as they work and talk by themselves. Moreover, to many observers as well as to many teachers, these lessons are the prototypical teaching event.

Such research is unquestionably important. In any institution in any society, interactions between young, naive members and older, more knowledgeable members have special importance; and we need to know what happens in such interactions in those special institutions for the transmission of culture that we call "schools."

But schools also are contexts for interactions among children. Potentially, children are much more available to each other than the teacher is to any of them. As a physically crowded human environment, classrooms have important resemblance to restaurants and buses--where many simultaneous conversations are the norm. But classroom conversation among children is usually considered just a nuisance: literal noise in the instructional system, illegal behavior to be tolerated if it can't be silenced. And even if tolerated, the social organization of classroom life can make it a rare event, an increasingly endangered species.

Before considering the intellectual value of peer dialogue across the curriculum, it's important to think about the extent to which it is being endangered in today's classrooms. For a general picture of classroom life, consider a recent observational study of primary school classrooms in England. In 1967, the British Plowden Report recommended the extension of what we know as "Infant School" methods into the older grades. Now, Galton, Simon, and Croll (1980)[2] have completed the first large-scale observational study of primary classrooms in England: a study of fifty-eight classrooms in nineteen schools in three educational authorities. In part, their purpose was to see whether what Plowden recommended (and what its opponents feared) had actually come to pass. As you read the following summary of what they saw, think about its relationship to elementary schools in the U.S. Here is my shortened version of Galton et al's "Conclusions and Implications":

> Primary schools have changed over the last 15-20 years to more flexible forms of classroom organization. But the character of that individualized teaching (or interaction) is overwhelmingly

> (72%) supervisory or routine; it is not the probing, questioning guidance that the Plowden Report had recommended. The main reason seems to be that when children's work is individualized in classes of 30, the teacher's interactions with individual children are largely in the service of keeping the class as a whole busily engaged. When the teacher's task comments and questions (those with definite cognitive comment) to either individual children, small groups, or the whole class are further divided into higher and lower cognitive levels, all teachers use more higher-level questioning with the whole class, presumably because here the teacher can give more of her attention to the intellectual content itself.
>
> With respect to peer interactions, two findings are clear: seating in groups has replaced seating in rows but only the setting has been socialized, not the work. And those teachers who do use small groups for instructional purposes are not "feeding stimulating ideas and questions to their pupils and they are not stimulating high levels of pupil-pupil interaction on the tasks at hand . . . There is no clear evidence that cooperative group work of the investigative, problem-solving, discovery kind . . . features more than sparsely in our primary schools" (precis from Glaton, et al, 1980, 155-165; quotes from 159 with emphasis added-CBC.)

It is my impression that two kinds of social organizations predominate in U.S. classrooms today: either traditional, large group instruction, with the teacher in control at the front of the room; or highly individualized work, with children alone at assigned tasks, and the teacher's role changed to monitoring and checking their individualized progress. Communities, schools, and classrooms of course differ in the relative frequency of these two types of social organization. But here, as in England, interactions among children focused on intellectual school tasks seem to occur only rarely in our schools.

Why does it matter? Why should dialogues among children be valued? What is the contribution that peers can make to each other? With all the pressures on teachers today, is there really justification for arguing that task-related social interactions among children are an important intellectual resource to be consciously included in the teacher's plans?[3]

The most obvious justification is the value of such interactions for social development in a pluralistic society. It makes no sense (and seems almost dishonest) to "mainstream" children across one dimension of diversity, and "integrate" children across another dimension of diversity, unless the social organization of each classroom ensures the kind of equal-status interactions from which positive attitudes across those differences can grow. Furthermore, it makes no sense to have learning so highly individualized in school, when teams and committees are such a prominent part of our adult social life outside of school.[4] In addition, we need the motivational benefits of cooperative learning, especially perhaps for pre-adolescent members of vernacular street cultures. But I want to focus here on a different justification--namely, the value of collaboration, and the dialogue it requires, for the language and intellectual development of each individual child.

The theoretical basis for this justification comes from two of the great developmental psychologists of our time--the Soviet psychologist Vygotsky and the Swiss psychologist Piaget. The important idea from Vygotsky is his fundamental belief that individual cognition has a social foundation, that complex thought is, in essence, internalized speech. In most of his writings, the dialogue referred to is that between child and adult. According to Vygotsky, the questions asked by the adult become the critical thinking, the introspective arguments, of the child's inner speech. But it seems consistent with the Vygotskian point of view that speaking to peers could be a helpful intermediate step between receptively being directed by the speech of another, and productively and covertly directing one's own mental processes via inner speech.

In one recently translated article, "The Genesis of Higher Mental Functions," Vygotsky writes explicitly about the cognitive benefits of talk among peers:

> The higher functions of child thought at first appear in the collective life of children in the form of argumentation and only then develop into reflection for the individual child . . . .
>
> Therefore, the psychology of the collective in child development emerges in an entirely new light. Usually the question has been asked, "How does one or another child behave in the collective?" We ask how the collective creates higher mental functions in the child. It has been proposed earlier that a function is in the individual's head in a semi-prepared or rudimentary form and that it matures in the collective, is made more complex, is raised to a higher level and enriched or, conversely, is impeded, neutralized, etc. We now have grounds for thinking that with regard to higher mental functions we must conceive of the matter in completely the opposite way. Functions are first formed in the collective in the form of relations among children and then become mental functions for the individual. In particular, it has formerly been thought that each child is able to reflect on, give reason for, construct proofs for, and search for the foundations of any position. An argument was spawned out of the clash of such reflections. But, in fact, matters stand otherwise. Research shows that reflection is spawned from argument. The study of all the other mental functions leads us to the same conclusion. (in press).

Although the theories of Vygotsky and Piaget differ in important ways, on the contribution of peer dialogues they agree; and in this same article, Vygotsky approvingly refers to Piaget. To Piaget, social interaction is an essential antidote to egocentrism: in the confrontation with alternative points of view one realizes the limitations of one's own. His fullest discussion of this role of social interaction is in *The Psychology of Intelligence* (1950, Chapter 6). But his introduction to *Group Games in Early Education* (Kamii & DeVries, 1980), written in May, 1979 not long before his death, is a short retrospective summary of these ideas:

> Certain educators say sometimes that my theory is only "cognitive," and that I neglected the importance of social aspects of the child's development. It is true that most of my publications have dealt with various aspects of cognitive development, particularly the development of operativity, but in my first works I emphasized the importance of interindividual exchanges sufficiently not to feel the need afterwards to return to it. In fact, it is clear that the confrontation of points of view is already indispensable in childhood

> for the elaboration of logical thought, and such confrontation becomes increasingly more important in the elaboration of sciences by adults. Without the diversity of theories and the constant search for going beyond the contradictions among them, scientific progress would not have been possible.

I will discuss an example of three models of peer interaction, models that differ in the roles the children take toward each other. In the first case, one child knows more than another and is expected to act as a *peer tutor*. In the second case, knowledge is equal, or at least not deliberately unequal, and the give and take of *equal status collaboration* is expected. In the third and hybrid case, which might be called *co-teaching*, children take turns being a resource for each other. For each model, I will give just one example, from a particular curriculum area. But all three models can, I think, be generalized across the curriculum.

Peer Tutoring

During the collaboration in an inner-city primary classroom in San Diego between Cazden as teacher and Mehan as researcher, we videotaped twelve peer-tutoring sequences.[5] In each sequence, called an instructional chain (IC), there were four episodes:

1. The adult teacher (AT) taught a task to one child (C_1), usually a language arts worksheet.
2. The child rehearsed (RHS) back to the teacher, pretask, what he or she was going to say.
3. The child was publicly designated as tutor (CT) for that particular lesson, and taught one or more peers (C2-n) while the teacher was busy elsewhere in the classroom.
4. In some ICs, the child reported (RPT) back to the teacher, posttask, about how the tutoring had gone.

Our particular interest here is in the third episode, when the child tutor must formulate instructions for peers. This episode is particularly interesting in the IC in which Leola, a Black third grade girl, was the tutor.

Leola's was the last IC to be taped. By this time we had established two criteria for constructing an IC task that could be both a challenging verbal task for the tutor and therefore also a useful context for observing children's language for us: it should have components that the tutees already understand, but these components should be assembled in some new way that cannot be inferred from looking at the worksheet itself. With such tasks, the tutor would not have to accomplish the instruction of a new concept, but the tutor would still have to communicate essential information without which the work could not be done.

Here are the first three of ten items on Leola's language arts worksheet (from an "Electric Company" workbook published by Children's Television Workshop) in completed form:

1. new 1. Y ~~o~~ ~~l~~ o ~~d~~ u 2. t ~~y~~ ~~e~~ o l ~~s~~ d 3. m ~~o~~ ~~n~~ e
2. no
3. off

You told me

Completing this worksheet has four components, clearly traceable in the video-taped record (plus a fifth, reading the newly constructed message, which was left for post IC discussion):

1. Read or say word on list; e.g., "new."
2. Think of its opposite; e.g., "old."
3. Spell the opposite; O-L-D.
   Find answer space with corresponding number.
   Cross out letters that spell opposite.
4. Copy letters that are left into spaces below: Y-O-U.
   Read these letters as a word; "you."

The next page gives a transcription, minus repetitions, corrections, etc., of the teacher's directions as she talked Leola through the first two items on the task. Note in passing that the teacher's questions serve to talk Leola through the task until she can do it herself. That such aid does help Leola work independently is shown by a comparison of the teacher's instructions for the first and second items. The first three parts are repeated, but then a much vaguer and incomplete question "Now what are you going to-" is sufficient, and Leola takes off on her own.

The important aspect of this IC from the Vygotskian perspective is the development of increased articulateness and precision in Leola's instructions, first in rehearsal back to the teacher and then in actual instruction of her peers. It was not immediately easy for Leola to put the directions for this task into words (and in fact she initially had some trouble with the concept of opposite itself). It is already clear from her pretask description that she does not use AT's model. If one considers the entire instructional chain as a "discourse imitation test," then the tutor's teaching must be reconstructed by the tutor's cognitive, linguistic, and sociolinguistic system. Whereas T taught with questions, Leola teaches with statements, most often "You gotta X." She constructs these statements herself, and that with some difficulty.

When Leola first tried to explain to T, pretask, what she was going to tell her group, she included explicit reference to only one of the four essential components, the idea of having some letters "left":

T: Tell me what you are going to tell them to do.
L: Spell these letters, and then put out that letter,
and then have another letter left.

T goes over the instructions again, this time asking Leola specifically to say the word "opposite." Leola then includes that word but with the vague verb "do":

T: You want to cross out the opposite of "new." You better say
that, because it's going to be really important. They are

Teacher's Instructions to Leola

Item 1

Teacher	Leola
(1) OK, now number 1 here says new.	
(2) What's the opposite of new?	Old.
Old. (3) How would you spell old?	O-L-D
OK, in the letters that are on this paper, cross out the letters you just used for spelling old.	(L. does it)
Good. (4) What word is left?	Y-O-U
What does that spell?	You.
OK, and down here you'll write you.	

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Item 2

Teacher	Leola
OK, now number 2 here says --	No.
No. What's the opposite of no?	Yes.
OK, and how do you spell yes?	Y-E-S
All right, now what are you going --	(L. crosses out the letters Y-E-S)
	Told.

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going to read "new," and then what are they going to do?
L: Do the opposite of it.

In actual instruction, Leola achieves the clearest explanation in Round 3:

> See, d-do the op-the opposite of ah-uh-"off" is "on," so you gotta cross, on number 3, you gotta cross "on" off. O-N. And you--it is "me" left, M-E.

Or without the hesitations and self-repairs:

> The opposite of off is on, so on number 3, you gotta cross on off. O-N. And it is me left, M-E.

After that her instructions become more reduced as she and her tutees successfully complete the worksheet, and she only returns to more explicit formulation twice when she notices they need help.

Overall, one is tempted to argue that the changes in Leola's instructions constitute an example of what Soviet psychologists call microgenesis--that is, development within an observable time period, and it is a kind of development that Leola seemed to need. In nine teacher-directed lessons analyzed by Mehan (1979), some three hours of talk in all, she spoke four times, and only twice more than one word. This is not to say that she was in any way nonverbal; but it is to suggest that she could benefit from challenges to formulate academic content in words, and that the demands of tutoring, including the need for repeated formulation and for corrections of others, provide that challenge. And, if there is any validity to the internalization hypothesis, practice in explicit overt formulation should aid inner speech as well.

Equal Status Collaboration

A doctoral thesis just completed by Ellice Forman (1981) at Harvard is an experimental comparison of collaborative problem solving with problem solving alone. The children in Forman's study are fourth and fifth graders, who in Piagetian terms were well into the concrete operational stage but showed no pretest evidence of any formal operational thinking.

Briefly, the task for the children was a set of seven Piagetian problems called the "chemical problem series," in which one finds out, by planning and carrying out real experiments, which chemical or combination of chemicals is the cause of a changed color of liquid. Three were simple variable problems and four were more complex, e.g., B or C without D. Fifteen children had worked alone on this set of problems in earlier research by Kuhn and Ho (1980), and eight children working in pairs were studied by Forman. All children in both studies had eleven working sessions.

On a measure of productive work, the benefit of collaboration is clear: whereas only four of the fifteen singletons got beyond the first three single variable problems, all Forman's pairs solved at least five, and one pair, George and Bruce, solved the sixth (B or C, without D).

Even more interesting are the qualitative differences among the pairs that Forman found in her video-tape analysis. She analysed the children's interactions during the planning time at the beginning of each working session into three levels of increasing complexity: parallel, associative, and cooperative. The pair, George and Bruce, who had solved the most problems, also had much the highest frequency of the most complex (cooperative) activity; and also had the highest frequency of what Forman calls metaprocedural comments on their work--such as task-related jokes, and when Bruce told George "you be the memory man." Having to justify oneself to a peer helps to save the pairs from the most common weakness of the singletons: holding onto false ideas despite evidence that is actually disconfirming. I understand that, on a NOVA program, Francis Crick, Nobel laureate biologist, said that this is precisely the benefit of collaborative research among scientists also.

Before leaving this example, I want to say a word on behalf of science in elementary schools, if it is truly thought as a laboratory science, as a context for language development. Ideas and points of view become operationalized in very concrete form, and therefore can be argued about in productive ways; and scientific activity intrinsically includes norms of careful descriptive reports.[6]

Co-teaching

In between unidirectional peer tutoring and collaborative problem solving is a third and more reciprocal model of peer interaction, beautifully represented by the dialogue between two second-grade children about their writing, overheard by a visiting Australian member of Donald Graves' research team in New Hampshire:

> On March 11, Jill was one of six children scheduled for a writing conference...At Egan's direction, Jill and the other conferees went to the language table. Egan had requested that Jill first spend time with seven-year old Debbie going over the book to be sure it was ready for a conference. Debbie and Jill were friends and knew each other well. Egan hoped this peer conference, like the three others going on at the same time in the room, would help Jill add more information and provide groundwork for the teacher-child conference to follow.
>
> The girls were confident and seemed to know how to proceed; certainly they had had excellent, consistent modeling from their teacher. Jill began by reading each page aloud to Debbie...
>
> As Jill listened to her own words, she made changes on pages 1, 2, and 3 without any prompting or comment from Debbie, and on pages 4, 5, and 8 in direct response to questions Debbie asked...
>
> At the conclusion of this half-hour conference, Jill had made six content changes which affected the overall meaning of the piece. She had deleted information which made no sense or which she could not support; she added information to clarify or explain. Debbie's presence was crucial to the content revisions of the draft. Her physical presence forced Jill to reread the book for the first time since composing; Debbie seemed to make the concept of audience visible for Jill. Jill also needed an active reader to ask questions...
>
> Jill put her story in the teacher's conference log and placed it on the corner of Egan's child-sized conference table, especially ordered because it is samll, private and conducive to focusing attention.

> Jill went to her cubby for a piece of cake, then to the window where she and Debbie shared the cake, talking, laughing, arms around each other. Then Debbie claimed her time: "O.K., Jill, you help me now!" They reversed roles, returned to the language table to work on Debbie's book *Ice Follies*, until Mrs. Egan was ready to see Jill twenty minutes later. (Kamler, 1980, pp. 683-4).

What makes this form of peer interaction so productive, I believe, is the consistent model presented by the teacher of the proper way to ask helpful questions that are focused on content of the writing, not on form. Questions focused on content are not only more helpful than questions about form when asked by the teacher, but they are also just the kind of questions that children can understandingly ask of each other. The teacher's model thus makes it possible for the children to take turns performing the teacher's role for each other--to the benefit of each child as author, who can have so many more experiences with a responsive audience; and to the benefit of each child as critic, who can internalize such questions through the process of not only answering them to the teacher, but of asking them of peers as well.[7]

Postscript

A science fiction story of Isaac Asimov (1957), entitled "The Fun They Had,"[8] describes a scene in which siblings in a future century, getting ready to settle down to their computer terminals at home, reminisce about the "olden" days they've heard about from grandparents, when children actually went to school together at a central place in the community. Now, while we still teach children in that central place, can we take fuller advantage of what Soviet psychologists call the "collectivity" for each child's maximum individual growth?[9]

Notes

1. Previous versions of these ideas were presented as the First Annual Dorothy L. Cohen Memorial Lecture, Bank Street College of Education, New York City, October 4, 1980, and at the fourth and last conference on the "IMPACT" of child language development research on curriculum and instruction, co-sponsored by NCTE and IRA, Cincinnati, November 24, 1980. Each occasion contributed an important emphasis. Our understanding of peer dialogues depends on careful observation, with which Dorothy Cohen has helped us, by her teaching and her writing, to do and to value (e.g. Cohen & Stern, 1978). And valuing peer dialogues is not only a matter of "kid watching," but also--in the words on the delightful buttons made for the IMPACT conference by the children in Vera Mills' classroom in Bloomfield Hills, Michigan--of respecting "kid power."

2. The second author, Brian Simon, deserves credit for being one of the first to bring Soviet writings on educational psychology to English readers (1957).

3. For extensive discussion of how to take advantage of the availability of peers for development of all the language arts, see Moffett & Wagner (1976).

4. I am grateful to Richard Ruopp, President of Bank Street College, for discussion on this point. As he said, pragmatically and politically, this may be the most powerful argument of all.

5. See Cazden (1976) for a personal account of this teaching experience. A more extensive analysis of instructional chains in this classroom can be found in Cazden et al (1979) and Carrasco, Vera, & Cazden (in press). The last is a description of a bilingual child who is taught in English and then shifts to Spanish to teach her bilingual tutee. Steinberg and Cazden (1979) describe peer tutoring in a class for emotionally disturbed pre-adolescents.

6. Lansdown et al. (1971), discuss the important role of "colloquim" in science teaching from a Vygotskian perspective; and keeping laboratory notebooks is an important part of the SCIS elementary science program.

7. In another paper (Cazden, 1980a) I have adopted the term "scaffold" for interactional structures in which an adult models appropriate behavior and in which roles are ultimately reversible. Peek-a-boo games played with infants are the prototypical scaffold. The writing conference described by Kamler seems to have these same structural characteristics.

8. I am grateful to Eliot W. Eisner, Stanford University, for this story.

9. For an introduction to recent Soviet educational psychology, and my comments on its significance for us, see Cazden (1980b) and the symposium of which it was a part.

III. Child Language Research and Teachers

Involving Teachers in Classroom Research

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When I first read the title which was allocated to me for this talk my reactions were favorable: the topic seemed to be something I was interested in. There is a problem, however, in accepting someone else's topic. As you come to prepare your material you find yourself wondering if you have understood the topic. Do they mean what you think they mean? You begin exploring the possibilities.

At first glance the topic is tautological. How could one do any classroom reaseach without having teachers involved? They would inevitably be doing the teaching.

At second glance the topic is an empty one. What self-respecting researcher would want to deal with the unpredictable events of a real classroom? How could any sound research design hope to discipline the multitude of factors which enter into the daily interchanges of teachers and pupils? Perhaps I should consider, as part of my discussion, the benefits to researchers of involving themselves in classroom research.

Are teachers already doing research? Almost everybody seems to claim to 'do research' these days, from the television program assistant, to the mothers' play group committee, to the advertising firm, and the political campaign committee. Research has come to mean the gathering of relevant information. If we limit the semantic field of this term to projects which employ the scientific method, then I would suggest that the essence of the scientific method has been, not the experiment, but observation. The question we can then ask is whether teachers are typically engaged in observation in their day-to-day teaching activities. The answer must be affirmative, because each move a teacher makes in a sequence of teaching is the result of observing the responses of the students to his or her last move. So experienced teachers are already sensitive observers. Their attention or focus is not on this observation as such but rather on the trajectory of the lesson or program. With experience they perceive, pick up, intuitively appraise, and subjectively monitor the responses, products and progressions made by their pupils without giving too much thought to the process of observing children. In these respects they are different from the scientific observer who sets up a particular situation in order to be able to record, with precision and objectivity, exactly what occurs.

I do not think we can say that teachers in their day-to-day activities are already doing research, in the sense of making objective recording of what is occurring in ways that can be clearly communicated to others. The public nature of scientific report is an essential part of the research process, allowing for affirming or negating evidence to be produced in response to that report.

It is a short step for teachers to move from being intuitive observers of teaching and learning to being objective and reliable observers in the scientific sense. They have to be willing to step aside from their teaching role to become, for a time, objective observers, and then they need a sound observation procedure and very little training. Teachers are already very good at taking into account a mass of variables that affect the teaching-learning situation. They understand the implications of differences in abilities. They understand pupil variability, in that today's effort may not be as good as some previous work. They have an excellent grasp of the progressions that pupils must pass through as they climb ladders of difficulty in each subject area. They understand the calendar of the school year and its implications for the timing of the observations. They are very aware of the times when extra pressures or demands fall on the teachers, or the pupils. They also understand some of the variables that arise from whether the teacher has more or less experience, and that good teaching comes in different forms arising from teacher differences. I do not want to claim that teachers are articulate about all these variables which affect classroom research, but I have found that as I work with teachers they are often the ones who raise the critical issues like, "Will it make a difference if we take the observations in May or October?" or, "With that group of teachers we will have teachers who have been trained in two different philosophies of instruction."

I would want to argue that teachers are masters of the complexity of their task; they have a good, if intuitive, grasp of the changes that occur in pupils over time and understand a great deal about the interactions that occur between teachers and pupils which is, after all, the essence of teaching. Researchers, on the other hand, have difficulty with all these three areas--complexity, change over time, and interactions. It seems logical then to examine how difficult or easy it is to bring the two professional perspectives to bear on the single problem of classroom research.

There are some difficulties, which I will try to explore.

One difficulty is the bias that arises from personal experience. It is inevitable that what we believe about children arises from some pooled and averaged summary of all our experiences with children. Every teacher's experiences have been limited to children in certain locations, at particular class levels, or of certain ability levels. As a result, they judge a new program, a research finding, a discussion of educational objectives in terms of their experience which introduces some bias to their judgments.

The researcher also has limited personal experiences but must eliminate bias by his or her procedures--like choosing samples of children which represent all children, or, if that is not possible, samples of known and described characteristics. In the latter case the researcher will know that the findings apply only to other groups of children of like characteristics.

A second type of bias comes from our belief systems, and in education I do not think you can teach without believing in the value of what you are doing. We are being confronted with choices all the time. Will we use this material or that? Which of two activities will best achieve our objectives for the children? Which curriculum change do I consider has the greatest potential for my class or school? Such questions are decided in part by the educational values we hold and the educational goals we aim for. The researcher also has belief systems, as you well know, from the competing theories in psychology and education. But the difference is that his or her beliefs are formulated as theories and are subjected to rigorous test. When the researcher gets a result it is not attributed to the program being tested until it is shown that the result could not have occurred by chance. If the researcher gets an equivocal result he or she cannot believe one possibility and forget about the other: a test must be devised which will answer the question "Which of the two possibilities is bringing about the effect?" A researcher cannot achieve a forward movement in a particular discipline unless he or she questions beliefs. Teachers cannot effectively teach unless they adopt beliefs about what they are doing and where their pupils are going, even though those beliefs consist of teaching their pupils how to apply the scientific method to or how to critically evaluate a piece of literature. Teachers involved in research may be assigned roles that are different from their typical role of the involved and inspired teacher.

I will mention only one other difficulty which has to do with the outcome of research. I think it is fair to say that the teachers would be pleased with outcomes which enabled them to improve their teaching, and they usually think in terms of new procedures, new programs, or a new conceptualization of goals. Stated in another way, teachers would like research to help them deal better with the complexities of their work, the changes in children over time, or the minute-by-minute interactions of teaching. (I will not try to define what 'better' could mean in that context.) The researcher really must aim to achieve something quite different, making sure that there are outcomes for the teachers which are satisfying to them in their terms. But the researcher's goal is to achieve some more general formulation, a more generative statement which will have applications that are far wider than the classrooms of the teachers he or she has worked with. The task is to question theory and provide new statements of theory which can them be refined by further questioning. For the teacher, a research outcome may be good because it works and the teachers may have any of a number of plausible explanations as to why it works. The poor researcher, and I deliberately call for some sympathy here, has to talk both to the teachers and to his or her colleagues. It is the professional role of those colleagues not to praise and admire, but to search for the weaknesses in the researcher's formulations. By such public appraisal is knowledge advanced. There are comparable processes in historical research and in literary criticism; I have attended to my own field of psychological research.

Teachers and Curriculum Construction

I want to move away from ideas about research in the classroom for a moment to consider curriculum construction. It makes a great deal of sense to involve teachers in the processes of evolving new curricula. Whatever the role of specialists in subjects and in curriculum design there is an important contribution to be made by teachers representing those who will put the new scheme into practice in classrooms. There is something of a tradition in my country for consulting teachers and having them serve on the committees that work on curricula revisions. Teachers are also involved in piloting the new programs and reporting back on them. Such processes seem to have two main advantages: first, they ensure that the new ideas will be workable in practical settings; and second, they make communication with teachers about the new ideas easier because the curriculum designers have already faced the matter of communicating with the teachers on their committee. In New Zealand, teachers between 1958-1962 had a major role to play in the revision of the reading program which put New Zealand practice ahead of theory in the field at that time in some aspects of research, and the experts followed up later with demonstrations about how the scheme worked. The teachers and their leader, Myrtle Simpson, developed the new scheme. Today that reading scheme needs revision and extension. Another committee of practitioners meets at regular intervals to guide the development of supplementary and new materials.

Consultation with teachers who know the complexities of the practical scene can be most helpful to the curriculum designer. Communicating to educators and teachers will be easier if their perspective has been understood.

Teachers as Data-Gatherers

I have been interested in the ways in which children's behaviors change over time--the sequences that they pass through and what encourages the shifts to new levels of achievement. To begin to study change, a researcher must have some way of gathering data at regular intervals. I encourage teachers to develop ways of capturing change in their pupils, mostly by collecting samples of work and saving them in folders so that two or three pieces can be set side by side and the differences studied. At one time I was interested in samples of children's writing and, because I already had some hypotheses about the progressions made drawn from a small group of children, it was important that I use a large and random sample, and that I collect early writing in all its variability from child to child and from school to school. I purchased some unlined exercise books, wrote some very simple directions, and asked teachers in the selected schools to get their children to write their daily stories in my book on one day--probably in the middle of the week. They were to do this every week for a period of forty weeks. As a result, allowing for the usual absentees, mobile families and interruptions for unusual events, I gathered nearly two hundred books filled with interesting writing done by children in classrooms. I had done almost nothing; the teachers had gathered the data. However, they had gathered it under standard conditions which meant that I could pool the material and analyze it for common sequences of change.

A second example of using teachers as data-gatherers occurred in the twelve surveys we have just completed in New Zealand of what children at the end of elementary school are like. We asked them to write about their out-of-school activities, interests, and perceptions of their world. On a particular Monday morning all the teachers in one-third of New Zealand elementary schools who had children in the last class (the 12- and 13-year olds) gave them one of our twelve questionnaires. Six weeks later, after the August vacation, they administered a second questionnaire. Every school principal had the right to refuse to participate, and each of his or her teachers could have exercised that right. Yet the cooperation throughout the entire country, comparable to a statewide exercise in the U.S., was superb, and we have reason to believe that most of them followed our instructions about administration and anonymity, sealing the envelopes in front of the pupils immediately after the forms were completed. Teachers in hundreds of classes issued thousands of forms consisting of millions of questions. They were most cooperative data-gatherers.

In both these examples there were two factors that were important in gaining that cooperation. First, the purpose of the research was explained to the teachers, and they saw the researcher's goals as similar to their own. They had an interest in finding out about how writing changes over time, and about the out-of-school activities of their pupils. They considered the research relevant to their own professional needs. Second, the task to be carried out by the teachers was designed to take a minimum of their time. It was a simple task designed to fit easily into the busy life of a school teacher. It involved time and effort on the part of the teacher, but it was not unreasonable in this respect. I have always considered myself as a researcher to be an intruder in the teacher's realm, an intruder whose presence costs the teacher time, disruption of the program, and anxiety about things the teacher is not sure of. I like to maximize my use of the data collected by teachers by designing my research well, to only ask the teachers to do what is feasible and reasonable, and to feed back to them any information that I gain as soon as it is available. If they let me intrude into their territory and time I owe them an early return of information that is useful in their terms.

The Teacher and Systematic Observations

Let me briefly mention three different approaches to systematic observation. Drawing a distinction with casual observation, the systematic observer has some procedures and categories to guide the observations. One of my research students recorded exactly what happened during a whole morning in ten infant classrooms, using a strict time schedule to redirect her attention to teacher or to pupils every ten seconds, and a complex set of categories for recording the activities, the size of group being attended to, and the responses of the children. Systematic observation schedules are not for the lazy.

Other research in classroom observation has taken its methodology from anthropological research and has resulted in the writing of a running account of what is occurring, trying to characterize the social climate, the demands and expectations operating, as well as the responses of teachers and pupils.

Yet other research has asked teachers by way of a questionnaire what their beliefs about teaching and learning are and has then followed this with observations in the classroom to see how the teacher works out that philosophy in practical activities.

I do not know what your experience has been with the group of researchers who work in classrooms, who are called behavior analysts. Sometimes the image that term conjures up is that of a group of researchers who want to manipulate teachers to use more positive reinforcement and to reduce the negative comments they make about children. I have been very close to the work of several colleagues who choose to work within this research framework and its associated theory, and I would venture to say that they involve teachers in their classroom research as much as any other educational researchers I know. In global terms, and without going into detail, they are typically invited into a classroom by a teacher who defines a control problem with particular children, or an academic problem in a particular subject area. Their first move would be to take some systematic observations in a thoroughly reliable method, giving them a natural history report of how the class responds to the teacher's efforts. They call it a baseline study. They may then discuss the graphs of these observations with the teacher and discuss some ways in which the situation may be changed. When an agreed strategy is arrived at, they encourage the teacher to continue as before, altering one aspect of teaching behavior or the program or the teacher's control or rewarding behaviors. They continue to take observations and capture any change that takes place. This process continues with small changes and renewed observations until a satisfactory degree of change has occurred and the class responses have become more satisfactory to the teacher. The changes that achieve any degree of stability are those that are acceptable to the teacher and result in better responses from the pupils. Teachers who have participated in such research become interested and eager colleagues of the researchers willing to carry rather larger research loads than one might expect.

Teachers and Research Planning

I mentioned earlier a series of surveys which New Zealand teachers gave to children who were around twelve years old. I would like to pay tribute to a very fine teacher who helped me with that research project. He was seconded from a school to be my assistant. He had completed a first class Master's degree with an interesting piece of research in classrooms. Together we reviewed the literature, examined the available surveys, designed eleven new ones, and planned the sampling. He organized the distribution of 40,000 questionnaires to schools in the correct numbers for each class, the return of the forms, the coding, and the card-punching. Admirable though these organizational abilities were, they are not the ones I want to draw your attention to. In our discussion he would often politely, but firmly, signal disagreement. To my academic researcher's biases he brought a thorough knowledge of the schools of my country, urban and rural, of the viewpoints of teachers, and of what is feasible within the school's timetables. He was often able to predict that some of our questions would draw facetious responses from the age-group and was able to suggest alternative formats. He told me when I was introducing a feminine bias or stereotype of boys, and I would reciprocate if I thought the masculine tone of a question was making it inappropriate for girls. The same processes were operating when we came to the interpretation of the data and the writing of the report. Those surveys would have been less appropriate, and they would have had less chance of engaging the cooperation of the teachers and the children had I not had the benefit of a sensitive teacher from the field to contribute to the planning and management of the project.

Some Personal Experiences

In classroom research there were two major types of questions that we can ask. One set of questions relates to the general query, "What is teaching?" and the other set of questions relate to "What is learning?" or "What does it mean to be learning a particular subject?" Some people ask what *theories* we have about teaching, or about learning, and their research flows from that question and is designed to answer that question. Some people ask what *programs* teachers are using and how they implement them, or they may ask how well children are learning in two different programs. Those questions determine the choices of research strategy that are available. Then there are two questions that are more open and not closely related to any particular theory. Some people ask "What do good teachers do when they teach, or what do children do as they learn?"

The emphasis of all my early research work in reading was on the question "What do children do as they learn to read?" I felt that we had not written the natural history of learning to read. There were many theories and much tightly controlled research, but what actually happened as children moved into reading and on into more difficult reading? So I took a sample of 100 children and recorded what they were doing as they read, every week for the entire first year of school. There have been many other studies which have recorded just what children are doing.

Af first I had a small area of concern. If I watched the children's progress very closely, would the teachers be anxious that I might uncover their weaknesses? This was overcome by sharing as much of my findings as was feasible as soon as possible, not waiting until the final report was written. In that way both the teacher and I were focusing on the child, sharing our professional knowledge for the child's benefit. I also talked to groups of teachers about the progress of the study.

Then I had a second area of concern. If I was writing a natural history of what happened, it should coincide with what sensitive and observant teachers already knew, so I ran the risk of being told that I was contributing nothing. My argument for the teachers on this point was this--I will not be discovering anything that a good teacher who has experience with first-year infant classes does not already know, but I hope that what I write will have two uses. It should put in some articulate form what you already know intuitively and it should make this information available to young and inexperienced teachers, even to teachers in training. This seemed to be a description that teachers accepted.

So, first I had decided to study the outcomes of the teacher's efforts or what the children were doing. Then I talked with teachers and shared with them my information as far as I understood it in an ongoing project. When I came to my conclusions, I tried to find out what they would mean to teachers--how they would interpret what I was saying. Then I conducted workshops for those who wanted to do their own observations of the outcomes of their teaching.

How could they become observers? I had worked out some ways which I had found easy and useful for recording what children were saying and doing as they read and it was an easy matter to offer these researcher's tools to teachers. They were not sophisticated psychological instruments requiring specialized training: they were standardized situations, and the recording required some skill, but it could be learned. For me the essence of the scientific method from which all of us could profit is observation, patient painstaking efforts to record what is, what exists, without bias or distortion. Images of the botanical drawings of Victorian times created as a scientific record come to mind. And so, with these convictions, it was natural that I wanted to invite teachers to adopt the scientific method, to become careful observers, and even to take some of their very busy and precious teaching time, of which there is never enough, and use it for non-teaching observations. That was the kind of research that I felt would lead teachers into new understandings of children.

How the Reading Recovery Program Evolved

When we came to look at the children having difficulty (and the teachers insisted that we help them with this problem) we based most of the study on observations of what good teachers do when they work individually with a child who finds the task hard. I began with one very good, young, and not very experienced teacher who had completed a master's degree with a thesis in reading. She was very sensitive to the children's problems; she had practical teaching experience but she was also able to articulate in terms of theory what she thought was happening in the learning-teaching situation. This teacher was the first of many to be put into a very difficult situation. From one side of a one-way screen she taught a child who was virtually a nonreader, while I watched and recorded the child's responses and her teacher-initiated moves. Sometimes the child's parent or class teacher would watch with me. When the teacher had finished we would have a long discussion in which I would go over the lesson and ask her what she thought happened at a particular point, what she thought the child's problem was and why, in theoretical terms, she had taken the action she did. Hers was not an easy task, and many times she would say "I knew you were going to ask me that and I'm not sure why." With the press of the teaching situation we make quick decisions, and it is confusing and frustrating to be asked for a reason for the action. We struggled through these sessions and seemed to reach some clarity about two sets of things: the difficulties that children were having, and the kind of responses that she as a teacher was making to those children. However, she was only one teacher and I was only one observer, and although we often did not agree on the articulation of what was happening, still our personal biases must be being built into the program. We needed more teachers and we needed a wider range of children.

About this time two reading advisers working for the Department of Education asked for the answers to handling children with reading difficulties that we had arrived at. My answer was this: we do not have a clear idea of where this project is leading us, but by the end of another year we might be ready to begin writing our report. If you'd like to join the project, by the end of the year you will be as well informed as we will be. They joined the project along with two reading teachers and one teacher of infants who had become a full-time university student for a year. Now we had six teachers, five of whom each taught two children throughout most of the year and one of whom taught six to eight children. For you see, each teacher had to agree to teach on one side of the one-way screen for the benefit of the other teachers who observed and discussed what was happening from the two points of view--the child's behaviors and the teacher's behaviors.

By the end of the second year we had a range of responses from different children who had different kinds of difficulties with reading, and we had a range of approaches to those behaviors which we had gathered from the team of teachers. The first teacher on the project and I then tried to put these ideas together into a simple guidebook for use in the third year.

We could proceed two ways from this point. We could continue to use teachers with specialized experience in a laboratory setting and show that the procedures would bring children back to the level of their classmates--for that was the aim of the program and the reason for using it with young children at the end of their first year of instruction. Or, alternatively, we could ask a different question which would be "Could teachers without specialized knowledge make this scheme work in ordinary school settings?" I had enough confidence in what I had been observing and in the teachers in the field to believe that the second question was the one to ask. If we could demonstrate that satisfactory gains could be made out there in the schools by teachers, our results would be more likely to be acceptable to educators.

We wanted an everyday practical scheme for schools that would not be unduly demanding of resources, and we wanted to negate the criticism that the scheme would work only under my supervision or with vast resources which would not be forthcoming. With the strong support of the District Senior Inspector of Schools who had already found the pay for the first teacher on a part-time basis for two years, we applied for--and got--five teachers to use as we chose. We selected some schools from low socio-economic areas with average to below-average attainments, and we talked with the principal and some staff members. We explained the project and said that we would like the principal to release from class teaching an experienced "infant" teacher who was considered a good teacher. One of our allocated teachers would be given to the school to take his or her class. The Reading Recovery teacher would teach children individually throughout the year. The Reading Recovery teachers selected by their principals had 4-8 years of experience, and no special training in reading.

This was the framework with which they had to work. In New Zealand, children come to school on their fifth birthday so that when each child had been at school for a year, the Reading Recovery teacher was to check out the child's reading with a set of observation procedures. From those results the children were selected who most needed attention and were put into the Reading Recovery teacher's program. We made some rules. The children should be given a full lesson of about thirty minutes each day, and the teacher was not to be taken off the task for any other school activity. We left to the teachers certain things which we expected to vary from school to school. They were the researchers in this case. By the way they dealt with these problems they showed us some of the possibilities and limitations of operating the scheme in schools of different sizes, with different ethnic groups and different types of home backup. The teachers decided

--which children came into the program i.e., how problematic they would be

--whether they would have two short lessons or one long one or some other arrangement

--how many weeks the children stayed in the program

--when the child was ready for discontinuing the supplementary program and able to survive back in his or her classroom

--what particular reading materials would suit each child, and what particular activities would be introduced into the required slots in our program.

On one thing they had no option. They were to teach for and to reinforce the child for using strategies--actions carried out on print to extract messages--and they would expect comment at the observation sessions if they seemed to be teaching for items of knowledge such as letters, sounds, or words.

To our surprise, those teachers demonstrated that daily individual lessons could lead to a child who was a nonreader rejoining his class activities with competent performance at an average or better level after about fifteen weeks! Some took longer, some took less time, but this early discontinuing meant that the teacher could now take on more children.

In all these activities, the teachers were teaching us many things. They came to an in-service session once every two weeks. Two of them demonstrated a lesson with children they had brought in while the others watched on one side of the one-way screen. Their tutor and I would, deliberately, begin to discuss what the child's difficulty was or why perhaps the teacher made a particular choice of teaching task. Before long our teachers were also discussing in the same way, and I could hear them articulating for themselves the kinds of things that my first teacher and I had sorted out two years before. The tutor led them to new questions and new insights. In the hour that followed the lessons, they discussed any of their own children's puzzling behaviors and any difficulties they were having in understanding some of the procedures or rationales we were working on.

One central feature of this learning by the teachers was the guidebook which my first teacher and I had done such a superb job of writing at an easy level (we thought!). We had made it all so simple! Politely, from time to time, the teachers made it clear that the guidebook was not guiding in some parts, and that it was plainly confusing in others. They were invited to tell their tutor every time they encountered a difficult, muddled, or inconsistent sentence or passage, and she wrote every complaint in her guidebook against the offending passage. At the end of the year her guidebook was covered with comments, and a complete rewrite was needed. We asked the teachers for any suggestions they had for making it more understandable, and they were able to suggest the inclusion of examples in some parts and changes of order in others.

Now let me recapitulate what had happened in that year of field trials. We had let the principal choose the teacher; we had let the teacher choose the children; we let the teachers arrange their timetable and their way of working; they chose the activities and materials through which they would achieve her transformation of the child's skills. We also let them use the teaching procedures and skills that they were successful with at first and only gradually introduced new ways of teaching with rationales that arose in discussion, allowing the teachers to take on new concepts and procedures in their own time and at their own rate. If they were too deviant in their practices, they tended to face the comments of their peers in group discussions after the demonstration sessions.

If our goal had only been to discover what range of organizational and teaching materials were used and how the level of ability in the children admitted to the program differed between small and big schools, and how long the average program would run for, then we had to let the teachers determine these factors in the research program. Those, however, were secondary research questions. The major research question was, "Could teachers working in this way recover children and return them to their classrooms to work at average levels?" We were depending on these teachers without research sophistication to support all our hypotheses about the early intervention program. We might have used highly-trained university graduates to effect the changes. Instead we worked with the teachers and provided support services to introduce techniques, foster discussion, and monitor decision making. We allowed the teacher's peers to support and challenge them whenever they were able. Consequently we achieved a double pay-off from the program--children who could cope with their classwork and teachers who were excited about what they were doing.

In the following year, we ran an in-service course for fifty new Reading Recovery teachers, divided into four groups. We again found that teachers worked very hard to understand the new teaching procedures. They kept the few rules we set. They made the program work in schools that were very different. They became very enthusiastic about their work, and educators who saw them at work commented on their delightful teaching. Visitors to the in-service sessions (including important administrators) sat on high stools behind the teachers who were observing the demonstration. They were enthusiastic observers of the two levels of tutoring they could see at one time--a teacher tutoring a child on one side of the one-way screen and a teacher-trainer tutoring the teachers on the other side of the screen. We thought there might be three levels of tutoring occurring!

You might think that the obvious thing for us to do with our teachers at the beginning of the school year was to give them an intensive training program so that they only did the "right" things. We were inclined to argue differently. Teachers were reminded that they were experienced educators and were urged to draw on their own experience when working with children. We did not wish to undermine the confidence of these teachers by lecturing them on a new approach, making them feel that they would not be able to teach until later when they had learned all about these new ideas. It was considered economical to move both children and teachers gradually from present competencies rather than to demand at the outset new behaviors which cause confusion and disrupt established and efficient responses. Teachers were working with children before any new teaching procedures were introduced. Gradually new concepts and activities were demonstrated, discussed, and became part of their teaching. As the course continued it became obvious from the teachers' discussions that their concepts of the child's task and of their roles changed.

Our teachers, at first, had their own theories about the task and pupil characteristics. By the end of the year and the in-service course they had acquired new theories about these two areas of performance and they questioned, challenged, discussed, and worked out a course of action, and explained their decision in ways that they all could understand, because the theories were shared and explicit. That does not mean that they agreed with each others' decisions, but could communicate about them.

At the end of the year we asked the teachers to write down their reactions to various aspects of the year's work. You will recall that teachers brought in one of their pupils and taught before their peers. None enjoyed the demonstration situation but almost all commented on its value, in words like

> Valuable. Great. Very useful. Excellent.
> Enjoyable. Very helpful. Exhausting but valuable.
> Absolutely necessary. Very stimulating.

These teachers described their ordeal and what they had gained in these ways.

> I found it a very nerve-wracking experience demonstrating and not much easier the second time around.
>
> I dreaded bringing a child in and being observed but it is a valuable experience. It gets easier as you go on.
>
> The one-way window was invaluable and could never be taken over by video-tapes. Being able to see someone working and being able to discuss and question as they went along was really good.

> I learned so much by just observing the children at work. Each one is so different and how they operate on print can vary so much.
>
> One is reinforced in some things one was doing and at the same time was shown ways of improving, and new ideas.
>
> The sessions taught us a lot, made us more aware of what we were doing and more self-critical.

The emphasis in the latter part of the year shifted to the children having the greatest difficulty who were the most worrisome pupils. Teachers were asked to teach, in their demonstrations, in ways deliberately chosen to expose the child's peculiar problems to the group. Afterwards the resources of all the teachers were directed in discussion to exploring the problem and searching for some approaches to it. The teachers' comments reflected the value they found in this part of the course.

> The most difficult pupils are very interesting to watch.
>
> The last term when we saw people working with very difficult children was extremely helpful.
>
> One of the early demonstrations should be with a child who knows almost nothing. Where do you start? What do you do? How do you build on nothing?

Demonstrations were followed by an hour's discussion time. The topics ranged from the demonstration just completed, to teachers' own cases, to difficulty with some concept, to questions about variations of procedures or appeals for suggested activities or materials for a particularly unresponsive child. The comments on these discussions show that teachers had a need to discuss their own work.

> There was never enough time to talk about everything that happened each fortnight.

They appreciated the value of the peer group.

> Reading Recovery teachers have no one else in their school to discuss problems with and need to meet other Reading Recovery teachers to air problems and find possible solutions.

They also recognized changes in themselves as a result of these sessions.

> I can honestly say that I learned something new every time I went.
>
> A major percentage of learning takes place here. The inservice sessions extend and consolidate one's understanding of reading processes and recovery procedures.

> They kept me thinking about ways to improve my teaching and gave me a good opportunity to discover whether I was approaching problems in the best way.

What we now need to recall is that his was not research designed to effect changes in teachers. All I have been describing was what was happening to our research assistants, the ones carrying out the program in the schools. The research question was, "Could we take the tail-end of the normal distribution of reading ability after one year of instruction and put most of the children back into the mainstream of class teaching?" We, as researchers, did not do that. Our teachers did it, and with such success that our analysis of the results showed that the effects were not only greater than chance but greater than regression to the mean, a statistical problem that remedial programs often cannot beat.

In Summary

I have spoken at length about projects with which I have been closely involved. I know that in the U.S.A. there are projects completed or underway which involve teachers in the classroom. At this conference you have had reports of such projects. Colleagues like Ken and Yetta Goodman, Courtney Cazden, Carol Chomsky, Moira McKenzie, and Martha King have been watching children as long as I have, and when you get excited about kid-watching you cannot help introducing teachers to the same exciting opportunities. On a larger scale, the Institute for Research on Teaching at Michigan State University has a variety of projects where researchers are asking "What do teachers in classrooms do?" At ETS, under the guidance of Ted Chittenden, there is a project in which teachers are equal participants with the researchers, joining the data-gathering, the group discussions, and the reporting phases of the project. I have not attempted to review such current activities but rather to call your attention to the potential for this kind of research--hoping that you will notice more of what is being done along these lines, accept invitations to join in such programs or, if you are a researcher, rephrase some of your questions so that you can involve teachers in your programs. A recent review of the impact of research on policy and practice in education gives two very strong arguments for such cooperative efforts. The first argument points to the retarding effects of old ideas on new developments.

> Research shapes values (and practices) but when it moves ahead it is contrained by the context which it has created.

You may recall how we moved our reading advisers along the same discovery path as ourselves by asking them to join the project. The second argument for cooperative effort is this.

> There are different stakeholders for different areas of research . . . but if research is to have impact, it must become participatory, involving stakeholders in the research process. When clients or practitioners have different values

> from researchers, these values will operate consciously or subconsciously to deter them from commitment, and thus limit or prevent impact.
>
> (Gideonse in Nisbet and Broadfoot, 1980)

Making Connections between Research on Child Language and Teacher Evaluation

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Background

This assignment has been a difficult one for me for I am not a researcher in teacher education. My specialty, as most of you know, is children's literature. At the same time that I disclaim knowledge about teacher education, I realize that I have spent nearly twenty-five years of my life doing it. And for the past ten years I have been involved in planning and teaching two experimental programs.

About ten years ago my colleague, Martha King, and I developed the EPIC Program, an alternative program at Ohio State University that provided for an integrated year of methods courses and student teaching for undergraduates in their junior year of college. The EPIC Program is still continuing, along with four or five other alternative programs which were later developed, and have many of the same components as originally planned for EPIC.

Because we thought the EPIC Program was so valuable for undergraduates, Sharon Fox and I planned an Integrated Language Arts Master's Program which we have had for the past three years.

So, while I have not done formal research in teacher education, this paper will draw heavily on my personal experiences in planning and creating these two experimental programs.

Education Today

This is a difficult time for those of us in teacher education. For never have public school practices in the majority of our schools been so far removed from what we know to be true about children's learning, particularly their language acquisition and reading and writing behaviors.

Social and political pressures appear to be pushing education in a direction that is almost opposite from the research that has been presented in these IMPACT Conferences. We see the child as a competent learner, actively engaged in discovering the structure of language, self-programming the simple rules of spelling, developing a sense of story and seeking meaning in his or her reading. But the "Back to the Basics" movement and its ally, competency testing, have taken us *back* to the outmoded model of teaching which views the child as an empty container to be filled with predetermined facts, which later will be spewed forth on standardized tests.

Where then does that leave those of us who believe differently?

- -- Certainly at odds with many of the practices in our public schools today.
- -- In conflict with many of the texts, teachers' manuals, and workbooks used in the schools.
- -- With the recognition that our schools have failed to teach children as adequately as they could, but *not* for the reasons given by the press and public.
- -- Teaching teachers who are frequently afraid to make any changes in their practices for fear their children's test scores would decline.

And so we attend IMPACT Conferences, hear about new research which supports our point of view, talk with other professionals who believe the way we do, and return home determined to make a difference, but not quite certain how.

Theory and Practice

Theory informs practice no less than practice informs theory. It is obvious that if the IMPACT Conferences are to have an impact, the research reported here must become a part of the content of courses in teacher education at both the pre- and in-service level of teaching. And yet as we planned the alternative programs at Ohio State we realized that it was necessary to change both the content and our methods of teaching at the university level if we expected to create changes in the ways teachers were teaching. We further asked ourselves how many of the principles that we knew were true for teaching young children did not also apply to teaching teachers? While it may be dangerous to extrapolate from reasearch with students from elementary school to college, it appeared to us that there were many connections between good teaching at the elementary level and good teaching at the university level.

The purpose of this paper will be to explore the parallel relationships of nine principles of teaching which I believe apply to both children and teaching.

1. Integrated Teaching

Much as we degry the fragmentation of teaching young children meaningless parts of words out of context, spelling without relationship to writing, and writing without relationship to real communication, so too did we find the fragmentation of courses for teacher training unacceptable. Certainly the research reported by Carol Chomsky and Courtney Cazden has shown the interrelationship among reading, language, and exposure to literature. We felt we needed to model this belief and teach all three of these courses in an integrated academic setting. We do need expertise and depth of understanding in each of these disciplines, but we also need to help students see the relationships among them. In order to counteract the effects of many years of fragmented, passive listening which characterized their previous schooling, education students need to experience whole, integrated teaching themselves.

In both the undergraduate and graduate program, students registered for one course in language arts, literature, and reading each quarter for credit. However, all three subjects were team taught for three quarters in one integrated course. We did need a year-long commitment from the students in order to combine the courses.

2. Time

Another obvious guiding principle was that real education and change take time. Both the graduate program and the undergraduate program were three quarters, or an academic year in length. The undergraduate or EPIC Program included methods courses and student teaching and took almost the complete time of these juniors in education. Next year the plan calls for a four quarter program. The graduate program involved one course each quarter plus four full Saturdays for each of two quarters for workshops, trips and other "hands-on" experiences. All courses were team taught by the same group of professors and teaching associates with one team for the graduate program and another serving the undergraduate.

If we are interested in the growth and gradual development of children's learning over at least one year, then shouldn't we have the same interest in the development of a teacher over a length of time? I can remember worrying about a particular teacher and her seeming lack of understanding of the process of learning to read, and Sharon Fox saying, "Don't worry; remember we have two more quarters to work on any deficiencies we see."

In the United States we expect everything to happen yesterday. We look at products rather than persons, scores on reading tests and achievement tests, and final papers and exams, rather than looking at the *process of becoming* both a reader and a teacher.

Certainly we have more research on the process of learning to read than we have on the process of becoming a teacher. But those of us who teach in the quarter system know that it takes much longer than thirteen weeks to teach even an adequate course in children's literature, language arts, or reading. In the quarter system you spend all of your energies on starting and stopping rather than teaching and learning. Having the same students together as a class for a whole year is pure luxury. They get to know you and each other; you, in turn, know them as human beings in the process of becoming teachers, rather than names on your computer read-out sheet. Time, then, enables you to personalize teaching, to individualize teaching in terms of students' needs, and to help students and teachers grow in the process of *becoming*.

3. Authentic Experiences

A third principle in planning these experimental teacher education programs which was derived from our knowledge and understanding of children was the need for authentic experiences. We know that children will learn the skills of reading, writing, and spelling when these skills are a part of the necessary context of learning which has power and importance for them. This is equally true for undergraduates and teachers.

Each year we have begun the undergraduate program with an overnight experience in Barnebey Woods, a large tract of woods and stream owned by the University and managed by the Department of Natural Resources. Here the students come to walk, explore, to write thought-ramblings, and to work in groups on nature projects and displays. One assignment asked each student to find a nature specimin--a leaf, rock, flower, or insect. Students were then asked to sketch or paint their object, and to write a detailed description of it. In order to get in touch with their own creative powers, they were asked to do something imaginative with it, be its voice, write a story or poem about it, or carry on an imaginary conversation with it.

After projects were presented, and artwork carefully displayed with written observations and stories, students were asked to reflect on the experience both in their field trip booklets and later in class. Students were asked to consider such questions as:

> What kinds of oral and written expression grew out of the experience?
> What thinking process did they have to go through to create what they did?
> What did they have to know in order to do what they did?
> What were the educational implications for such an experience?

Finally, we asked them if they could state the educational objectives we had for taking them on such a trip. Reflection and self-evaluation need to be a part of all teaching. Implicit learnings need to be made explicit.

Saturday workshops for the teachers have included similar kinds of experiences such as cooking, bookmaking, sensory activities including "blind" walks, trips along High Street to tape record sounds, copy down bumper stickers, collect and categorize litter, interview people; anything to help teachers see and feel as a child, recapture the excitement of learning for themselves, and extend their visions of what makes dynamic learning. We have to remember that we are now teaching a generation of TV-raised children, children who have missed the sights and sounds of exploring an unknown territory, who have not engaged in imaginative play but rather spent much of their lives passively seated in front of television. How then, we may ask, can they open up the real world of learning for their students if they have never experienced it themselves?

How can they know what is involved in making leaf prints, mapping an insect's trail for ten minutes, making a game from a book, or a chart comparing five stories about witches, unless we give them that opportunity? By doing it, they can see the concentration involved, the opportunities for much focused talk, for writing and reading. Telling them won't do; lecturing while they sit passively digesting our words of wisdom will never change their teaching styles. *Doing*, provided they understand the reasons behind the doing, may effect behavior change.

4. Making Sense of Teaching

A fourth principle that we considered in planning these programs was that it was important to have teachers enjoy them, but it was even more important for them to understand why they were doing or teaching in a particular way.

It is almost a truism today to talk about the child's search for meaning. We know as we observe and record children's miscues in reading or their so-called spelling mistakes, that they are usually the result of the child's attempt to make sense of the book or his real intent to communicate.

In a similar fashion, pre-service and in-service teachers want to make sense of their teaching. Our goal for the experimental programs was to produce *informed teachers*, teachers who knew *why* they taught as they did and could explain it to others. One of the requirements in the master's program was that you must read aloud to your children every day, preferably several times a day if you taught in kindergarten or the primary grades. One of the teachers came to me very concerned because her principal had visited her third grade twice while she was reading aloud and then had asked her to come in for a conference the next week. She knew he was going to question her reading aloud since she was the only third grade teacher who took time to share stories with her pupils. My reply to her was to ask her to state the research of which she knew that supported a read-aloud program. She ticked off the Cohen study, the Chomsky one, the Cullinan, Strickland and Jaggar one, the Sostarich dissertation which found reading aloud still made a difference between sixth grade active and nonactive readers. She was ready for her conference. That Monday when the principal did indeed ask her if she thought it necessary to read to third graders, Patty quoted him all the supporting research. At the following faculty meeting, the principal announced that all teachers should read aloud to their students at least fifteen minutes a day! Teachers need to know why they are doing what they are doing and be able to inform both parents and other faculty members.

5. The Value of Talk

This same teacher had to justify the value of allowing her students to talk in the classroom, to work together to achieve their common purposes. Once again she was able to draw on research and this time she gave her principal Douglas Barnes' book *From Communication to Curriculum* which shows how children frequently talk their way through to meaning and communication.

In most university classes including those in education, we look to the professor as the fountainhead of all knowledge; the students are seen as the recipients. Yet surely college students have much to be gained from talking together, not in sharing their ignorance but in probing their knowledge, or looking at various aspects of a particular subject.

In teaching children's literature, we frequently had in-depth discussions of one book such as Molly Hunter's *A Stranger Came Ashore*. Rather than have the whole class discuss it, we might divide into small groups with different assignments. One group might find all the Scottish superstitions and talk about how the author used these to predict the action of the story. Another group might list all the clues they could find as to the identity of the Stranger including who knew his true nature first. A third group might read Jane Yolen's picture book *The Greyling* and decide how they could link that with *A Stranger*, while another group might be looking for appropriate sea poems to capture the eerie mood of Hunter's book. After some twenty minutes of focused talk, students would then have something to share with the entire class which could enrich everyone's interpretation of *A Stranger Came Ashore*. Another time we may read different books all linked by a common theme such as "survival," or investigate books by one author such as Madeleine L'Engle or Betsy Byars, or books of a particular genre such as high fantasy.

In this way, students become acquainted with more books and a greater variety of books. They are developing an increasing sense of form and slowly beginning to develop a frame of reference for literature. Always there is time for them to hear different interpretations of books and poems and learn that there is no "correct" response, but many different responses.

Teachers who are students in the university are not empty vessels; they can still teach each other and they have much they can share if only professors will take advantage of it. If in elementary schools we believe there should be as much student talk as teacher talk, then in-service programs should allow for as much teacher talk as professor talk.

6. The Importance of Context for Skills

Basic skills *are* important in teaching the elementary school child--we would all acknowledge that. However, the emphasis of the persons attending this research conference would be that those skills must be taught in a meaningful context. Then the child sees that such skills provide power to do what is important for him or her.

Certain basic skills of observation or "kid watching" are essential for teachers to know. And these, too, should be taught with real children, meaningful materials, and in real classrooms. Our master's students were all asked to look at children's various responses to literature. They analyzed children's telling of stories to see what kind of a sense of story they had developed. They learned to give and interpret Marie Clay's "Concept of Print" test; they evaluated children's writing samples over a period of time. They analyzed children's spelling to first determine what children knew about spelling, then they looked to their errors. They made miscue analyses of children's reading and then looked to the probable causes of those miscues. These skills of observation and analysis were not taught once and then forgotten, but introduced gradually in the beginning of the year by asking them to shadow a child for one day, to try to have a significant conversation with a child, to look at his response to a story, to evaluate his ability to retell a story, and then to discuss what these behaviors tell about that child. Throughout the year, other assignments sharpened their observation and evaluative skills. At the end of the year they listed all the techniques that they knew to help them know about children. We emphasized how much more they would know about a child through the consistent use of these child watching strategies, and how much more they could share with parents than what a single test score could convey.

7. Reinforcement of Learning

Reinforcement of learning is as essential at the university level as in the primary school. Just as children do not always understand a concept the first time they learn it, so too do teachers need much reinforcement of learning, particularly when methods cut across their traditional beliefs of what constitutes good teaching. For this reason we felt it was essential that we model in our college teaching what we perceived as good teaching practices. Fortunately, by team teaching, one of us could play the role of the observer and make explicit certain teaching practices that were being used. Otherwise students became so caught up in the doing of a project that they could miss the implications for teaching. Analysis of the *process* of learning always took precedence over the *product* of learning.

We were also fortunate that over the years we have produced teachers who were taught in this fashion, and they in turn have become superb models for student teachers. In these classrooms, their educational philosophy and practice were reinforced rather than destroyed. Too often student teaching becomes a kind of indoctrination into mediocrity as students are told, "Don't believe what they say at the university; this is the real world and this is how you have to do it." The real world of teaching for these students illuminated the philosophy and methods advocated by the university alternative programs. Students could visit and participate in classrooms that modeled what they were being taught in their methods courses.

8. Recognition of Work Well Done

Just as students received positive reinforcement of their teacher-training, we could and did give positive reinforcement for their own personal growth. It is essential for good teaching to believe in the child's ability to do and learn. It is also essential for the growth of pre-service and in-service teachers to have high expectations for each of them and then to be certain that they receive recognition for when they are achieving. One former student told me that she has been teaching for seven years and never once has she had a principal who told her she was doing a good job. And she is a capable and intelligent teacher. Most teachers want to learn and to improve their teaching abilities. I abhor the use of the term "teacher-proof" materials, for it implies low intelligence, lack of creativity, and no interest in individual children. Imagine selecting a medical doctor because he used doctor-proof techniques!

We have had teachers who could intellectualize the implications of research for teaching but could never apply them in their own classrooms. We had one reading teacher in the master's program who had done the same things with her students for years. But Alice, as I call her, had begun to read to her children, and she gave them some opportunity to tell and write stories because we had made such an assignment. Then towards the end of the year, her husband made a workbench for her classroom and she couldn't believe the interest, the language, and writing that grew out of the children's woodworking activities. We all celebrated with Alice for *her* super idea! Slowly and surely progress comes if you expect it and recognize it when it happens.

9. Continuous Support

Finally, we believe that such intense and personal education needs a support system even after students have received their degrees. Mini-courses which carry only one hour of credit enable us to offer a brief in-depth look at particular subjects or techniques of teaching. We have offered mini-courses on Poetry, Picture Books, Folktales, Story Telling, Parents and Reading, and Observation Techniques which Marie Clay is currently teaching. Each quarter we try to bring at least one author or illustrator to campus for a lecture which is open to all. In the fall quarter we were fortunate to have the poet Karla Kuskin and Uri Shulevitz, author/illustrator, and Madeleine L'Engle in the winter quarter. Teachers in the schools are always notified of the time and place of these visiting artists and writers.

Another close link between the university and the field continues to be the student-teachers and their supervisors. Because many of the teachers have been former EPIC students or have been in the maters's program, they know what to expect of the student-teachers and work closely with the program.

Frequently we invite one or two teachers to come to our classes to share what they are doing with literature and writing, or whenever possible we take classes out to the schools to visit. I think it is absolutely vital to have teachers articulate what they are doing, and why. This is also why I believe it is so important to invite them to appear on NCTE and IRA programs. The more frequently you can explain your program to others, the firmer becomes your understanding of the reasons *why* you are teaching the way you are. Teachers also need to hear from teachers who really are teaching superbly. The more we can feature them, the better.

Another kind of support base which we give to our teachers is to invite some of them to work on a periodical which is produced quarterly, and which reviews new books in terms of children's response to them. The *WEB* is unique in the field of reviewing because no other periodical regularly describes how books are used in the classroom. Recently we have included a "teacher feature" which highlights teachers who work in a unique fashion or have a particularly outstanding program of literature and reading. Each issue of the *WEB* includes a web of possibilities based on a particular theme such as books about houses, or folktales, or a single book, suggesting activities and linking these with other useful titles. As teachers interact with other teachers in the development of these webs, some powerful learning and thinking takes place.

If I had to summarize my beliefs about teacher education, I would simply refer to it as the process of *making connections* between what we know about child growth and learning and practice in the schools; between good teaching at the elementary level and good teaching at the university level; between helping students and helping teachers grow in the process of *becoming* all that they can be.

IV. Respondents

IMPACT Conferences: What's the Impact?

Martha L. King
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As a means of celebrating the International Year of the Child, the four conferences on children's language and learning--cosponsored by IRA and NCTE--can be judged monumentally successful. They accomplished what they set out to do: to consider and disseminate new knowledge about how children learn language and become literate. In no area of human learning has the research in the past two decades been more prolific, revolutionary, or challenging than that concerned with the way children acquire language and literacy. The implications of this new knowledge for curriculum organization and language teaching in schools are far reaching. But the big problem we face, a persistent problem in education, is to get the new information and insights into classroom practice.

The celebrations are over; it is now time to stand apart and review the events of the past two years--to reflect, to sort out and judge just what did occur and what we might have learned from the richness of the experience. What pervasive concepts and principles stand out? What was the impact on those fortunate enough to take part in the conferences? And how might that influence be extended to audiences beyond the conference halls--and the two organizations that have sponsored the events?

Conference Concepts, Themes, and Major Strands

A strong, inspiring theme was established in the beginning and was maintained throughout the four sessions; it resounded through the conference halls at Atlanta, San Francisco, St. Louis and Cincinnati:

> The child is competent, the child is creative!
> Look at him! Observe her!
> See what he or she can do!

Whether the topic was grammar, spelling, writing, language awareness, or literature, this positive note became dominant:

> The child is able! The child is creative!
> The child can do!

What a welcome message this was from that which teachers and parents so frequently hear! Too often, children are labeled deficient in certain knowledge and skills or unmotivated to learn, when it is the school practices themselves that make them look that way. But the IMPACT Conferences sent forth a different note. With the child placed center stage in the most favorable light, all who participated were challenged to look closely, to observe carefully, and to get to know and appreciate the myriad of talents the child possesses and can use if allowed to do so.

Once the main theme was set, it was explored, repeated, and embellished around four main strands: (1) children's oral language, (2) their writing development, (3) metalinguistic awareness--the bridge between the two, and (4) the school curriculum that provides the context in which all three are realized. The pattern of organization recognized not only an important difference between oral and written language, but also crucial factors in their development: a nurturing curriculum and an awareness of language.

In their remarkable accomplishments in speech, children have paid little conscious attention to language itself; rather they have used it as a transparent carrier of their meanings. But in writing, the ideas they want to express must be transformed into visual language and represented in letters and words, organized into sentences and packaged according to an array of linguistic and literary conventions. Children learning to write face the dual task of holding meanings in mind as they also attend to making appropriate representations on paper (Smith, in press). This is a tremendous problem for children, often causing a breakdown in the flow of the message and discouragement in the novice writers. The mind operates so that a single entity is in focus at any one time and other things--spelling or skillful formulation of sentences, for example--are kept in a subsidiary role (Polanyi, 1966; Broudy, 1972). Thus, it is only as children can scribe with ease that they are able to give full attention to meaning.

But oral and written discourse differ in other ways, too, which relate to the school curriculum. The major distinction between them, in Halliday's (1973) view, is best made on the basis of *function*. Spoken language, he argues, has primarily an *interpersonal* function expressing a speaker's participation, while written language serves an *ideational* function, enabling one to express through language both the content of experiences, and the basic relationships that exist among and within experiences. These relationships are a part, not only of the external world, but of the internal world of the mind as well. While talk serves primarily to maintain social relations, written texts specify logical relations of ideas and are highly specialized. Meanings are encoded for reflection--i.e., to explain or describe phenomenon--rather than for action. Obviously, school curricula vary greatly in the extent to which children are expected to use the ideational function of discourse.

Concepts of Language and Learning

The conferences were brilliantly orchestrated. As the dominant theme of *competence* developed, other motifs and concepts were introduced and woven into the unfolding score of each succeeding strand. One cheering statement appeared early and stood out:

Children know how to learn!
Learning is well on its way when they come to school!

Despite what kindergarten readiness tests indicate and what some teachers may believe, children do not come to school empty-headed, waiting to be taught. They bring with them a personal history of learning--of learning the language and culture of their homes and communities. Their meanings are represented in language and their language is constrained by their meanings. Halliday (1975) has described how children learn the language and culture simultaneously, learning one semiotic system through the medium of another one in which it is encoded (p.11). Children's language can't be separated and dealt with apart from their personal experiences, which explains why children's achievement in school is sometimes so dependent on the institution's awareness of their personal histories in respect to language and culture. To truly meet the needs of children, teachers must try to discover what children know and believe and fit the curriculum to them, rather than prescribing lessons on the basis of placement tests that ignore individual and cultural differences.

Children know a lot when they come to school, and perhaps the best example is found in their command of oral language. Unless some unusual circumstance has occurred, all children arrive at kindergarten knowing how to talk and to use language to serve their personal purposes in familiar environments. They know how to form messages, when and for what purposes to talk, how to get the attention of a conversational partner, and most can tell a simple story. Many recognize written words found in the world around them; some are beginning to write and to form their own spelling rules. An increasing number are well along their way in reading. But most significant--to those who have eyes to see--*they know how to learn*. They go about doing it every waking hour, learning what things are and what they can do--i.e., caring for pets or negotiating traffic on busy streets. They know about things that are important to them in the world in which they live. We may well ask why this learning power is not always apparent in school.

A most fascinating aspect of this early competence is the child's propensity for taking charge of his or her own learning. There is evidence in many facets of language learning that children first develop their own system and structures and later take on the adult system. Halliday called attention to this feat in his explanation of the way children form their first grammar in early speech. He claimed that children first utilize a protogrammar, based on language functions, which changes during the second year as children gradually move closer to the adult system and they use and refine their growing language knowledge. Read (1975) and Henderson (1980) have demonstrated a similar phenomenon in spelling and word knowledge as Clay (1975) and Ferreiro (1980) have in the development of early writing and concept of message. Recent research by J.R. Martin (1977) suggests that this development of a personal system may also occur as children schematize stories. All of these studies illustrate children's creative skill and tremendous capacity for learning, but how does it happen? What is the nature of the learning process?

From the several conference presentations on children's language learning, certain concepts were emphasized as fundamental to the process:

(1) Language is learned through use and within the social interactions of the family.
(2) Children's language learning is very rapid during the first two to three years of life.
(3) The process of learning is universal because the language functions are universal.

Standing out most clearly was the fourth concept:

Language is born in action!

The child's language is built from the social interactions in the family and the meanings expressed in the home. The mother or another caretaker plays a key role. Caring for the infant--bathing, dressing, and feeding him or her--the mother also plays, cuddles, and caresses, and establishes certain routines. There is a sequence and pattern to the actions which often are accompanied by singing and talking. Soon babies too learn the pattern of the routines, join in the actions, and then begin to initiate the routine themselves. Children seek social relationships and soon begin to take charge of their own learning. The random babbling sounds gradually become ordered to accompany the play routines and before long, children fashion a repertoire of sounds and actions to express their meaning for at least four purposes: to get what they want, to relate to others, to regulate others, and to express self (Halliday, 1975).

At this very early stage children have deduced spoken language meanings from their use in familiar events and find ways of making their intentions known to a potential conversational partner. They show also that they are aware of the fact that others have intentions, too, and try to link them, to engage another's interest. In this way, children take their first steps toward conversational competence.

The role of the adult is vital but, until recently, not well understood. Within the global language learning process we know that adults do certain things that create effective communication. For example, they generally attend to meaning rather than to the language itself. Parents seldom set out directly to teach the child to talk, although they often simplify a task and the language associated with it, or repeat and stress certain words or phrases. Instead, their attention is on meaningful tasks and relationships of which language is a part. Halliday (this volume) describes how parents track the children's actions, interpreting their intentions, responding to their meanings, and thus, help them to learn both language and concepts at the same time.

But this general description of the learning process fails to explain why some children come to school with a much stronger linguistic background than others. The easy answer is to associate the discrepancies with social class, which some researchers have done. But another approach is to carefully observe the child-adult language in a variety of situations over an extended time and try to sort out the particular characteristics that foster language growth and are likely to lead to subsequent language success in school. Evans (1977) whose research was a part of the Bristol Early Language Studies in England did just that. She analyzed recordings of parent-child interactions which were collected over a period of three years prior to school entry, and then went on to relate her findings to the child's later success in reading. She concluded that, "It is the quality of the adults' contribution to conversations—the kind of feedback they give the child, and the length of the conversational sequence--that seems to make a difference."

Evans further stated that children who engage in sustained discourse with parents, even though the replies may be brief, develop high levels of comprehension which apparently facilitate their entry into reading. The longer sequences allow children to see how their contributions can be developed and built upon, and how experience can be exchanged through discourse. Through such exchanges the child begins to feel the power of his or her own contributions and to see the importance of attending to what a partner is saying in order to make one's own contributions fit.

The Teacher's Role

Having explored the role of parent-child interaction in the early learning process, implications for the school and the role of the teacher were addressed at the conferences. These complex issues were approached first quietly and subtly, by implication, and then strongly and directly:

> Teachers should link into what children know
> and carry that learning on.
>
> Teachers should become informed observers and
> intelligent interpreters of children's behavior.

Both classroom teachers and researchers shared ways of understanding children's behavior in order to discover what they *know* and what they can *do*. As teachers become more insightful regarding children's knowing and learning strategies, it is expected that they will be better able to provide meaningful learning experiences. The goal is to provide new content and skill-learning opportunities that are somewhat familiar to the child, but are, at the same time, sufficiently new and novel that they awaken curiosity and stretch learning powers. Observing individual behavior and responding to children's knowledge and intentions, however, is not a simple task, particularly where there are large classes and the children come from very diverse backgrounds. Yet such diversity only increases the need for teachers to know children well and to understand how they are construing their worlds. Unfortunately, typical assessment procedures do not provide this kind of insight which comes primarily from teachers' informed observations and attention to what children say and do. The strategy proposed for teachers was like the tracking behavior that Halliday said parents use as they help the young child to build his or her first language. Both teacher and child interact in such a way that the teacher can tune into the child's thinking and become aware of his or her meanings and ways of going about a task. The teacher supports, challenges, discusses, and interprets the attempts made by the child and helps him or her to reflect on, revise, and extend meanings. Some teachers do this very skillfully as is shown in the following example from the videotape shared by Moira McKenzie.

The excerpt shows a teacher talking with an eight year old about the symbols he plans to put on the lens opening of a model camera he has made out of balsa wood: (T=teacher, C=Colin, A=friend).

T: Well, if you look at the real camera and look at the sorts of pictures they've got on that--
C: That's--I copied from it.
T: Did you?
C: Yeah.
A: Yeah, they've got clouds, dark clouds and light--
C: It's got hazy, thunder and seaside. Guess what the difference between seaside and just a normal bright sun it? Because seaside you get the water reflecting up light so it's got its own dial and you put it on seaside whenever you're taking a picture near water.
T: Do you think there's anywhere near here that we might need to put it on the seaside dial?
C: The pond up there (points).
T: Do you think there would be enough light reflected off it to have the effect?
C: I think there might.
A: Yeah, if he was in the shade.
C: And if you want half sun and half misty sun you put it in between the dials--and that gets it.

The teacher here seems to understand that learning is more than the teacher "telling" the pupil, and that the best results occur when there is meaningful interaction between them. Her behavior is much like that of the supportive parents Evans (1977) described.

Children share the power and responsibility for their own learning.

New ways must be found to share the power of the classroom with all of the children so that they can find their personal learning strengths and share in the responsibility for their own intellectual growth. Too many children find school a strange environment where they confront new demands, often through the use of an alien "school" language. The experience is especially baffling for those whose language and culture differ most from that which is offered by the school. What a profound impact Sarah Huddleson (IMPACT Conference, San Francisco, 1979) made with her description of the struggle Spanish-speaking children sometimes have in even the best-intentioned Anglo/Spanish classrooms! In the situation she described, all children were learning a new language: English speakers learned Spanish while their Spanish-speaking peers learned English. Certainly, on the face of it, this appears to be a commendable way for pupils to share equally the problems associated with learning through a second language, as well as the advantages that come from learning a new language and its culture. But systematic observations revealed that, in very subtle ways, the learning environment usually favored the Anglos. It was customary for only Spanish to be spoken on certain days and only English on the others, with expectations for the class and directions given in both languages. These expectations and directions, however, always were given first in English, even on the Spanish-speaking days! (For instance, I'll explain this in English and then in Spanish.) Thus, day after day, English was used to frame both the work procedures and the knowledge being studied; thus, the Anglos had a steady advantage.

Even in classrooms where only one language is spoken, communication may be a major problem; the world of the classroom and the worlds of the learners may be too far apart. There are too many situations in which teachers unintentionally talk past their students who in turn fail to show much interest or understanding of the activity in progress, and often resort to ridicule or some other form of mischief. At the same time, the school staff in curriculum meetings might be formally declaring a commitment to providing for individual differences. Very little true individualization can exist, however, without a sharing of meanings between teachers and learners.

The Classroom Context

The next related concept, though never fully developed, was felt throughout the four conference sessions and focused on the school and its curriculum as well as on the teacher and child:

> The total context of situation
> affects the language and learning underway at any one time.

Knowledge and language skills are not learned in isolation, but as they are mediated through social interactions in an environment of people, beliefs, goals, events, objects, and activities. The purposes for action, the relationships among participants, and the particular roles people play, all influence the language and learning that occur. Vera Milz introduced this strand with a description of how she changed her first grade classroom and her mode of operation in order to create an environment where children could experience reading and writing as it occurs in the real world (IMPACT Conference, Atlanta, 1979). She made written language available through notes, letters, directions, and stories; she created situations where children felt the the need to write themselves, and she also made it possible for children to begin to use and enjoy reading just as ordinary people do. One of the big problems children face in learning to write in school stems from their lack of purpose and a clear sense of audience. These difficulties are overcome, however, when children find valid reasons for writing and become aware of how it contributes to ongoing work of the classroom and the personal meanings accrued from these activities.

Different facets of context were explored throughout the conferences, leading to a high point in the final session when the entire program explicitly addressed contextual factors of learning environments that affect language. Moira McKenzie, through both verbal and video examples, showed how learning occurs in classrooms that are rich in learning experiences and offer opportunities for children to work together in different ways.

Later, Courtney Cazden (this volume) explored, in considerable detail, the significance of peer relationships and advocated more intellectually-focused interaction among students. She recommended that teachers give greater attention to the different role relationships that pupils assume from time to time as they work together. In this way, children learn to recognize and appreciate the special abilities which each person can contribute in order to fulfill a particular purpose.

Concern for the temporal dimension of context was expressed by Janet Hickman (this volume) whose research in classroom settings convinced her that time was a key factor in children's response to literature. In her view, schools need to provide for long stretches of uninterrupted time if children are to be able to thoughtfully respond to stories, books, and poetry in different ways.

In classrooms as in homes, it is both the quality of the learning experiences available and the nature of the interpersonal relationships that determine the way language is used and tasks are pursued. The life of the classroom is not static, but the result of the dynamic interplay between various elements at any one time. These elements, so important in curriculum planning, include the total situation of place (home/school, classroom/library), content (pioneers/energy), events (circle time/individual study), activity (drama/constructing), participants (students/teachers/aids), roles and role relationships, goals of the group, and the intentions of each person involved. These are the critical variables with which educators can and must work. Teachers will affect the language used simply by changing the activity. Pioneer life, for example, can be studied through discussions, question and answer sessions, reports, or drama. It is conceivable that teachers might affect children's talking and writing simply by changing the role relationships in the class. In writing, for example, a shift of the teacher's role from that of examiner or corrector of papers to that of a helping adult can have positive results. According to Britton et al. (1975), a teacher who engages a learner in dialogue about a paper fosters a more effective relationship than one who acts simply as an evaluator of papers.

In long-term planning for language development, many successful teachers find it useful to organize the cirriculum around broad topics or themes that contain a wide spectrum of valid and interesting content for children (Smith, this volume). Topics may range from a study of witches in literature in the second grade, to an exploration of the natural environment in the fourth, or to a study of the Middle Ages through literature in the sixth. Whatever the topic, and regardless of how it is pursued, there must be facets within the study that will appeal to children with different backgrounds, interests, and abilities. The focus should be on learning *about* the place, the time, or a particular phenomenon. Skill in talking and writing will be acquired as children need to find out and *record*; organize information and *report*; discuss, reflect on, or generalize new learnings, *explain* or *describe* events; or *speculate* about what may have caused events in the past or what might occur in the future. In addition, greater understandings will result if children also have the opportunity to deal with content from different perspectives--if they can experience the content through drama or writing in the fictive mode. These media allow children to imagine similar situations, take on different roles, envision past and future events, and test the reality they perceive in a new situation. In both drama and fictive writing, children find new uses for language as it both shapes and becomes part of the content, or the artistic whole, being created. Children sense this special relationship between language and text and try to find "the words that sound right" when writing, or to "talk like a princess" when engaged in drama. Children become aware of language through reading, listening to stories and poetry, writing stories and verse, discussing their reading and writing, and through improvised drama where attention to language is an essential part of taking on a role.

In considering techniques which might be used to develop children's metalinguistic awareness, we need to beware of focusing too narrowly on specific features of language and their direct teaching to the neglect of larger, more meaningful units of discourse in which children attend to language because they have a personal purpose for doing so. For example, a group of seven-year-olds purposefully attended to the language "real" authors use when they wanted to write about the places witches live. They scrutinized more than a dozen fairy tales to learn how different authors describe the houses, caves, and cherry trees that were the homes for witches. The children then used this information to construct replicas of these various habitats and to write descriptions of such places in the stories they were creating. Thus, these children were able to extend and enrich their language as they used it. They increased their knowledge and appreciation of what language is as they became aware of what they could do with it!

These children were learning about language in a way that was consistent with Halliday's advice:"Let children study language at the same time they are learning to use it." This brings us back to the metalinguistic bridge between spoken and written language. Mattingly (1981) proposed a helpful distinction between one's access to grammatical knowledge, or the ability to use linguistic information, and linguistic awareness. He maintains that it is the *access to grammatical knowledge* rather than the conscious awareness of that knowledge that facilitates the transition from speech to literacy. Access, he believes, is dependent on one's continued active involvement in the language learning process beyond that required for interactive speech. The key to literacy and to extended functions of language seems to be success in keeping language learning active beyond the early period of learning to talk. Children in preschool and primary school classrooms need experiences beyond those required in interactive speech, but found in forms of discourse in which language is an integral part of the message, e.g., listening to stories and poetry read aloud, story telling, and participating in rhymes, jingles, and word games. All of these are whole-language activities.

Recapitulation

As we recapitulate and reflect on the toal experience of the past two years, a key impression is one of harmonious wholeness. This feeling undoubtedly results from the way certain statements, concepts, and practices occurred and were regularly repeated—forming a pattern much like that found in a musical score. Competence, purpose, social interaction, personal intention, intersubjectivity, awareness of the intentions of others, parent tracking, risk taking, adult rationale/children's logic, implicit/explicit knowing, context, using language/awareness of language, skills within the whole-task, process/product, integration, and personal power--all these remain as filing pins for reconceptualizing directions for teaching and curriculum planning.

The conferences began with a spirited celebration of the child's competence and ended with a stirring plea to

amplify and dignify the status of teachers.

If the new knowledge about language and language learning is to be implemented in schools, teachers will have to assume greater responsibility for both the learning and the learners in their charge. They need to observe and understand how children are learning, to be concerned about the significance of day-to-day happenings in their classes, to select content and organize learning environments that are in tune with the real world that children know, to discern and plan for children coming from widely different social and cultural backgrounds, to link into children's knowing, and then to extend that knowing with appropriate materials and experiences. At the same time, teachers must be evaluating children's growth, along qualitative, rather than quantitative, dimensions. These expectations call for highly competent teachers who have considerable latitude in planning for children in their classes, and some real influence on the curriculum and evaluation policies of their school districts. Yet, for schools, these are times of growing conservation and widening restrictions, rather than much-needed liberating policies. Teachers say they feel so bound up by narrow behavioral objectives, prescriptive curriculum guides and restrictive subject matter and methods, that they feel powerless to act. Their actions are further constrained by an increase in class size, vexing social problems in their classes, and endless other matters emanating from special interest influences, school board policies, legislation, and court rulines. All of these factors tend to change and diminish the role of the teacher. Decisions are made for them and, increasingly, they depend on others (often remote from the classroom) for their teaching materials. As this forced dependency increases, teachers feel less and less responsible, either for their own success, or for the students under their supervision. The morale of our most conscientious and gifted teachers is at risk. Declining power over their professional work is destroying the creative motivation needed to sustain teachers as they perform their highly complex tasks. Surely, just as children are entitled to share the power of the classroom, teachers too merit considerable independence in determining how their classrooms function.

It was strongly implied in the conference that the teacher's role in research, both as consumer and participant, should be amplified. If this goal is to become reality, then teachers must feel responsible and free to observe children, to try to discover how they are learning, and to respond with learning methods and materials that they deem most valuable. This does not mean that schools should abandon curriculum plans or the specification of common subject matter and resources; but rather that such plans and materials should be sufficiently flexible to allow teachers room to maneuver and use their own judgment.

To focus again on a persistent problem in education which concerns the dissemination and implementation of knowledge, the message of the IMPACT Conferences was exceedingly clear: teachers' involvement in research allows them to be in on the creation of new knowledge from the beginning. The wisdom of this message was very evident as teachers, along with researchers, shared their insights from investigations underway in their classrooms. Marie Clay, from her vast experience in classroom research, explained how teachers and researchers working together can make a powerful team. Each brings very different skills to educational problems. While the researcher looks objectively at one or two facets of the learning situation, teachers are masters of the complexity of their task and in a position to see the changes that occur in students over time. The IMPACT Conferences will surely advance the cause of education if they result in a gradual bringing together of ever larger numbers of researchers and teachers who, together, are determined to use their knowledge for the improved educational experience of all children!

Language Development: Issues, Insights, and Implementation

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Introduction

To be born human is to be born with a potential for thinking, for knowing, for understanding, for interacting, for communicating, for developing language. The human infant begins immediately to realize this potential by forming schema for assimilating and accommodating the experiences it has with the world. With a universal human ability to think symbolically--that is to let something symbolically represent something else--and a universal need to communicate, human societies and human infants universally develop language.

Only human beings are capable of the level of interaction we achieve because only humans have language, and language is necessary for the full sharing of feelings, needs, wants, experiences, and insights. Language becomes the medium through which thoughts are shared; but it is also the medium of thinking and of learning. Through language, people may link their minds, pool their experiences, and form a social base for a shared life-view. Language is both the product of a culture and the principal means by which the culture is created. As children develop language, Halliday (1969) says, they learn how to mean as the society around them does.

Language is social as well as personal; it is learned in the process of its social use. Thus parents, care-givers, siblings, peers, and others with whom the developing infant interacts play vital roles in the infant's linguistic development. They are less teachers than essential communicative partners; less role models than respondents; less to be imitated than to be understanding and understood.

Nature, Nurture, and Social-Personal Invention

While all that I've said so far is not novel information, it represents a necessary major shift in focus from behavioral views in which language is seen as something outside the child, somehow taught to the child, or learned through conditioning.

It is also a shift from an old view, recently revived, that language is not learned at all but is innate. In this view, language in some underlying and universal form is pre-programmed into the human brain needing only exposure to some real human language to be realized. Such a view stems from two sources.

The first is the amazing feat of language learning itself. Scholars are astounded by how quickly, how early, and with what ease language develops. It's too complicated to be learned by such young minds so easily and so well.

The second source of the view of language as innate stems from the rejection of the alternative behavioral explanations as totally inadequate to explain language learning. Developmental research and linguistic theory have demonstrated the complexity of human language learning and particularly of the development of implicit rules by which novel language can be created by the learner. Some scholars in rejecting behavioral language learning theory could find no alternative, so they assumed language to be innate.

But the innate view of language development is at best unproductive. It causes scholars to treat development as uninteresting. Why study something if it is innate and happens universally anyway? At worst the innate view leads to the neglect of the social and personal functions, circumstances, and contexts within which human language develops. If language is innate, the most that social and physical environmental factors can do is inhibit the innate development.

Language learning in the past has been reduced to nature (nativistic) or nuture (behavioral) views, neither of which can explain how language develops or why. The how and why of language development are inseparable in attempting to understand both oral and written language development.

While progress on understanding oral language development has surmounted the obstacles of these inadequate theories, understanding written language development has been considerably retarded by them until recently. Partly this difference stems from the obvious, spontaneous, and universal development of oral language, evidence of which was too overt to be ignored, whether oral language was treated as behaviorally conditioned or natively endowed.

Written language development is more subtle and becomes fully evident at a later point, usually after school entrance. So behaviorists could argue that written language development required explicit, controlled exposure to a carefully sequenced hierarchy of skills and sub-skills for its development. They could further argue that those who have more difficulty in learning literacy need even more highly structured skill instruction; the inability to learn to read and write through the skill instruction is used to argue for even more tightly controlled and sequenced instruction.

And nativists could argue that it is oral language for which humans are pre-programmed. To them, written language is a secondary and abstract representation of oral language. It is thus not learned like language but requires "metalinguistic awareness"--that is, explicit knowledge of how language works--for its development. Their view is that oral language develops so easily because it is not learned but innate; written language is more difficult to develop because it is learned and not innate. To some nativists it is not surprising that written language is hard to learn; in fact it is surprising that it isn't harder.

An old issue in philosophy and psychology is the difference of knowledge of something and knowledge for something. Confusion between these kinds of knowledge has troubled both research and instruction. There is a strong tendancy to judge what people know or how well they've learned by what they can explicitly and abstractly discuss. So we have tended to judge the language knowledge of children by what they can say about it rather than by what they can do with it. Sometimes we go so far as to think of the knowledge of language as prerequisite to its effective use. Linguistic awareness or metalinguistic awareness are terms used variably as Dybdahl (this volume) points out. But to some they are used to cover abstract ability to discuss how language works.

Sometimes schools are encouraged to "put learners in touch" with what they know about language; that is to help them reach a point where they can analyse what they do when they use language. While children may find this interesting, to a certain point, it's hard to find a justification for it as an aid to learning either oral or written language. At best, encouraging pupils to think about what they're doing while they speak or write, read, or listen makes them self-conscious and distracts them from the meaning being communicated.

Perhaps what we are misled by is that children do ask questions and make comments about language as they are gaining control over it. Furthermore, the more proficient children are in the use of language the more they tend to be able to talk about it, since they can draw on their own intuitive knowledge to support their conclusions. Neither of these obvious facts establishes that metalinguistic awareness is a cause for or prerequisite to language development. In fact it is more likely that metalinguistic awareness is a by-product of language development.

Of course, those who regard written language as an abstract school task to be mastered will see knowledge of language as logically prerequisite to its use. In doing so, however, they are falling into an old trap of believing that children must be taught the symbols, structure, and rules of written language before they can read and write. The only argument in that case will be over which is the true knowledge to teach. Yet all that we have learned about language development indicates the fallacy of the assumption that knowledge of form must precede use.

A personal-social invention view cannot support these distinctions between how oral and written language develop or the relative ease of their development. If language develops to meet universal personal and social needs, then written language development is simply an extension of that process. It comes when oral language is insufficient to meet the communicative needs of the individual and the society. Furthermore, children growing up in a literate society in which written language performs vital functions will begin at early ages to internalize these functions, to experiment with use of written language to meet their own functional needs, and to gain control over the forms of written language. In short, they will begin to develop as readers and writers before they reach school age and without instruction.

The differences in pace and degree of oral and written language development are not so much the differences in how and why each develops but between the functions, purposes, and contexts in which they are used.

Applications of New Knowledge and New Theoretical Insights

New research evidence and theories have given us much insight into language and language development to use in developing new criteria for building sound, effective, instructional programs. Viewing language as social-personal invention puts the teaching and learning of literacy in a new light. It can now be seen as a natural extension of language learning. That makes it possible to think in terms of building on what children already know, working with them rather than at cross purposes to them. Literacy is neither something to be taught a piece at a time or something hard and abstract, but simply another language form to use in the functional context of its use.

Perhaps the most important new insight to come from recent work on language development is the personal-social perspective itself. That enables us to put language development, receptive and productive, in social and situational context. It enables us to see what is happening in speech acts as a series of transactions between speaker and listener within a social-cultural context. We can then focus on the speaker, the listener, the discourse or text, and the context, but only in relationship to all other components. This same view can apply to written languge, except that the reader and writer are seldom in each other's presence, and the situational context is less complete.

In this new perspective we have been able to gain new insights into language by looking at its functions--what it does, what it is used for, and then relating both linguistic form and language development to those functions. Here's an illustration of how useful that's been.

Teachers have noticed for some time the overwhelming tendency of school beginners to write using capital letters. It's been commonly assumed that this is the result of parents teaching children to write with capitals. But there is little evidence that parents do much overt teaching of writing, and the writing parents produce which children can observe is generally cursive.

How then do children learn to write using capitals? The answer is all around us! One important use of print is in the signs which label our stores and buildings, call attention to commercial messages and offerings, and guide and control us. Street signs and traffic signs are examples of the latter. Overwhelmingly these signs are printed exclusively in capital letters. So children who use capital letters in their writing must be learning to do so through their interactions with print in their environment.

Environmental print is not the only written language children experience as they grow up in a literate society. They see books, newspapers, magazines, print on television, handwritten lists, notes, letters. But environmental print is pervasive and serves an easily inferrable function.

This example illustrates how we frequently must put aside what we thought we knew about language when we look at language in the context of its use. We've all learned the rules for capitalization in written texts. These rules are verified in a wide range of texts we read: letters, newspapers, books, stories. But the rules do not apply in the range of other uses of print, particularly that which children most frequently encounter on packages, television, street corners, and billboards. In fact the print which is most attractive and situationally made meaningful is likely to be in capital letters. That doesn't make the rules wrong. But it means that they do not apply to all written language contexts and functions.

The example also illustrates some very important insights about children's written language development. Print is part of the social and physical world in which children in a literate society are growing up. Piaget (1969) has demonstrated that children engage in transactions with their world, interpreting what they see, feel, hear, and otherwise experience. They form hypotheses about what things are for and how they work. They develop schema for their interpretations and modify these schema as they gain further insights.

Ferreiro, (Ferreiro and Teberosky, 1979) drawing on Piagetian concepts, has demonstrated that children in a wide range of cultures and socio-economic circumstances are treating print as a significant part of the physical world. They are generalizing about how print as a system works, what it's for, and which features of it are important.

Clay (1977), Y. Goodman (1980), Harste, Burke and Woodward (1980) and others have shown that most children have developed strong roots for literacy before they have any school experiences. Goodman has found that children's awareness of the function of written language in representing meaning begins separately and at least as early as any knowledge of letter forms and names. Redd (1975) and others have found uninstructed children using sophisticated rules for relating the spelling system to phonology, letter names, morphemic and orthographic features.

While these rules don't always work and don't always correspond to adult rules, they show the active minds of the child language-learners at work in developing written language just as they are in developing oral language. They show children learning the form of language as they try to use it functionally.

The example of children's early use of capitals is, of course, relatively trivial compared to many things that our new perspectives have made it possible to understand and appreciate about children's oral and written language development. What's most important of these new insights is that they are virtually universal beginnings of reading and writing among children in literate societies. Written language is developmental, very much as oral language is. Children are well on their way to literacy before they come to school. What we do to help them expand and build on what they've begun becomes the crucial issue.

We're redefining, in the context of this developmental view of how children become literate, what effective teaching must be. We've come to see teaching as supporting the learning, not controlling or necessarily causing it.

Much past research on effective teaching was focused on whether method A or method B produced the most learning judged by pupils' gain scores on achievement tests. Such research was virtually useless since it was not likely to be rooted in any theory of language development or coherent view of what the pupils were learning.

Other research dealt with ways of teaching specific skills, often under controlled laboratory conditions. Such research was even less useful since neither the skill learned nor the laboratory conditions could be easily or meaningfully related to what happens with real language users reading, writing, speaking, or listening in real classrooms.

Now techniques borrowed and adapted from ethnography are being applied to the classroom. Researchers, operating from a theoretical perspective, are carefully monitoring what teachers are doing in classrooms as they interact with pupils. Often the teachers are part of the research team, verifying the observations and their interpretations. Now we can see the interrelationships of teaching and learning at the points where they are happening.

The research of K. Goodman (Allen and Watson, 1976) and others analyzing the miscues of readers has provided insights into the reading process and how it develops. The work of Graves (1975) and others has provided similar insights into writing development. We can begin to relate this research-based theoretical perspectives of reading and writing to what we are learning about how teaching can support learning.

Research and theory on language processes and language development, as important as they are, do not translate directly into curriculum and instructional strategies and methodology, however. They provide foundational knowledge upon which educators--using their knowledge of children, learning, and curriculum--can build sound and effective practice. Educationists must decide the value of knowledge to curriculum and methodology. New curricula must grow from the integration of new knowledge about process and development with sound pedagogical theory.

Nor can we afford to wait for all the returns to be in. There is a tendancy for teachers, administrators, and curriculum specialists to throw up their hands at the unsettled and unsettling nature of the state of knowledge of language and language development. These are dynamic fields with conflicting schools of thought and new theories overturning old. It can be more comfortable for practitioners to sit on the sidelines and wait for the dust to settle. But too much is being learned to be ignored. We owe it to our pupils to utilize the best educational practice possible. If we wait for consensus we will be staying with increasingly outmoded practice.

Furthermore, there must be two-way communication between the practitioners who have knowledge of the realities of teaching and learning in real classroom circumstances and the researchers and theoreticians. In fact, we need interdisciplinary teams composed of academic scholars, researchers, integrators, disseminators, and practitioners who can make new insights truly available to teachers and learners. Such cooperation depends on mutual respect, particularly respect of teachers by the others. Teachers have the reality-based insights that can turn new knowledge into effective practice. They can use the knowledge to monitor their pupils' progress, to plan instruction, to evaluate and modify their own teaching.

The Battle to Apply What We're Learning

The implications of our growing insights into oral and written language development for educational practice are already profound. We know so much about how and why children learn both forms of language, about the conditions under which language develops most easily and best, about how teaching can support development. And the implications of what we have yet to learn are even more profound.

I foresee a time when our school practice will be conceived as an expansion of children's language development, when we will be working in harmony with their natural language learning. Then we will see the importance of all language experience in school being useful and relevant to the learner. We will appreciate at that time the strength of children as language learners and know how to support and build on such strength.

There will come a time in our schools when we will no longer talk about readiness as a separate set of prerequisites to learning but understand that what is learned must be functional in its own right, though it forms a foundation for further learning.

I foresee a time when the entire curriculum will be centered, as Smith (this volume) suggests, on integrated development of language and thinking. Teachers will be aware then of their essential double agenda: they will monitor children's language development in the context of their cognitive development. At the same time they will understand that the pupils need to keep their focus not on language forms, but on the meaning they are expressing and comprehending.

Literacy will soon, I believe, come to be accepted as a natural development for all learners, and we will have school programs that involve whole language right from the beginning. The classroom will become, then, a literate environment in which children read and write in increasingly more effective and varied ways.

This is no utopian dream I've conjured up. I believe it is easily possible to achieve it. All it takes is hard-working, dedicated professionals who believe in kids and in themselves and who are willing to fight to make it happen. We've had some aspects before: there was a flourishing child-study movement in the 1930s. But education, like all human endeavors, is not a totally rational institution. It takes constant efforts by all those concerned, and particularly the teachers and other school professionals, to keep the gains that have been made in improving practice and keep things moving forward through progressive application of new knowledge and theories.

The fight is a professional fight. But it is, in contemporary conditions, also a political fight. Researchers, scholars, parents must join the school professionals in waging this fight on behalf of learners. Knowledge is of no use if it is not applied. And there is much new knowledge to apply to the teaching and learning of oral and written language.

V. Child Language Research: Implications for Curriculum and Instruction

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I. A "Kid-Watching" Sampler

The most effective way to learn about children's language development is to observe children's actual language behavior in a variety of contexts. The following is a sample of recent publications which together describe a variety of approaches and techniques teachers and researchers can use to gain insights into children's concepts of oral and written language, their stages of development, their strategies for processing language, and their uses of language.

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